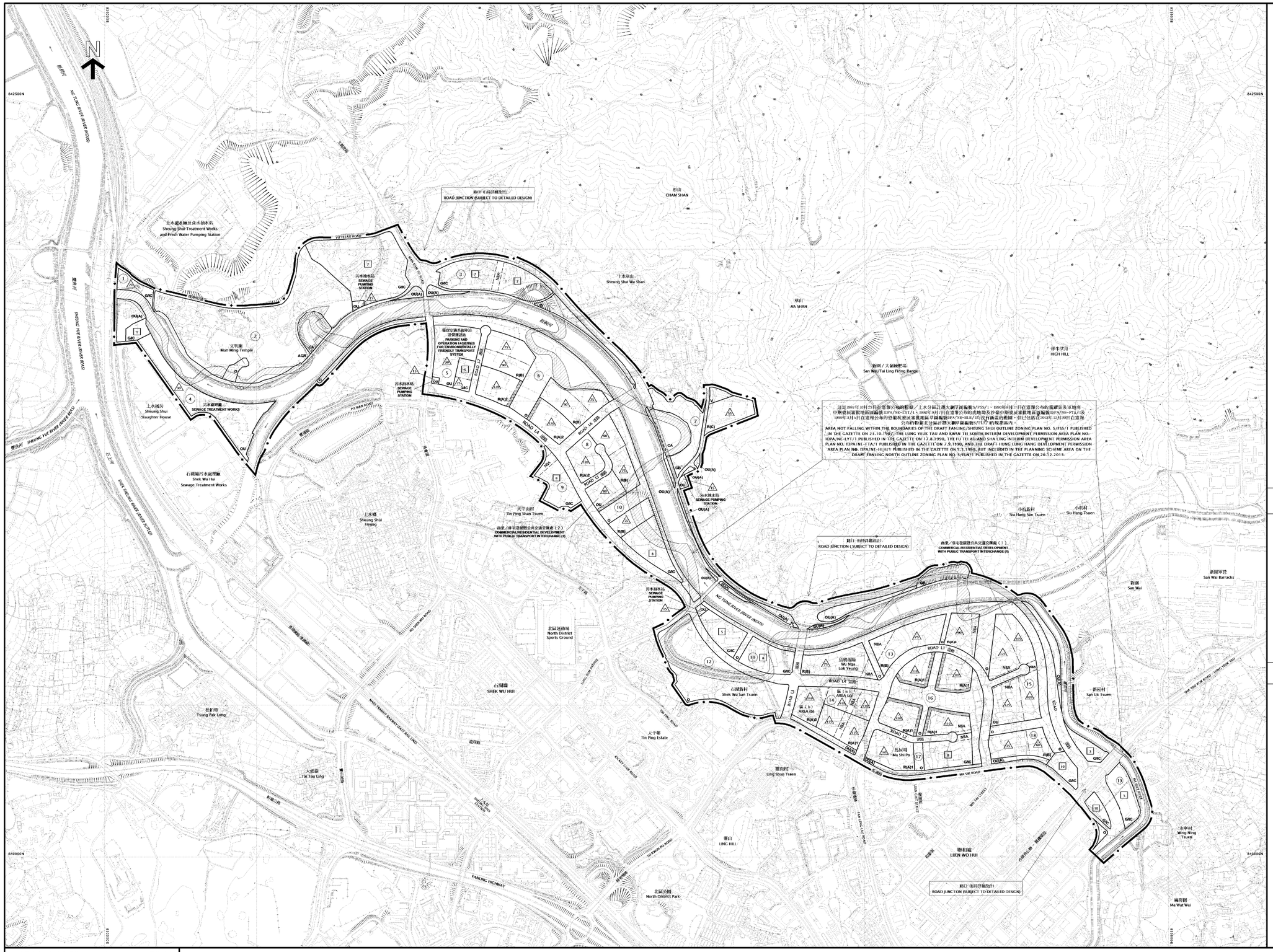
Attachment I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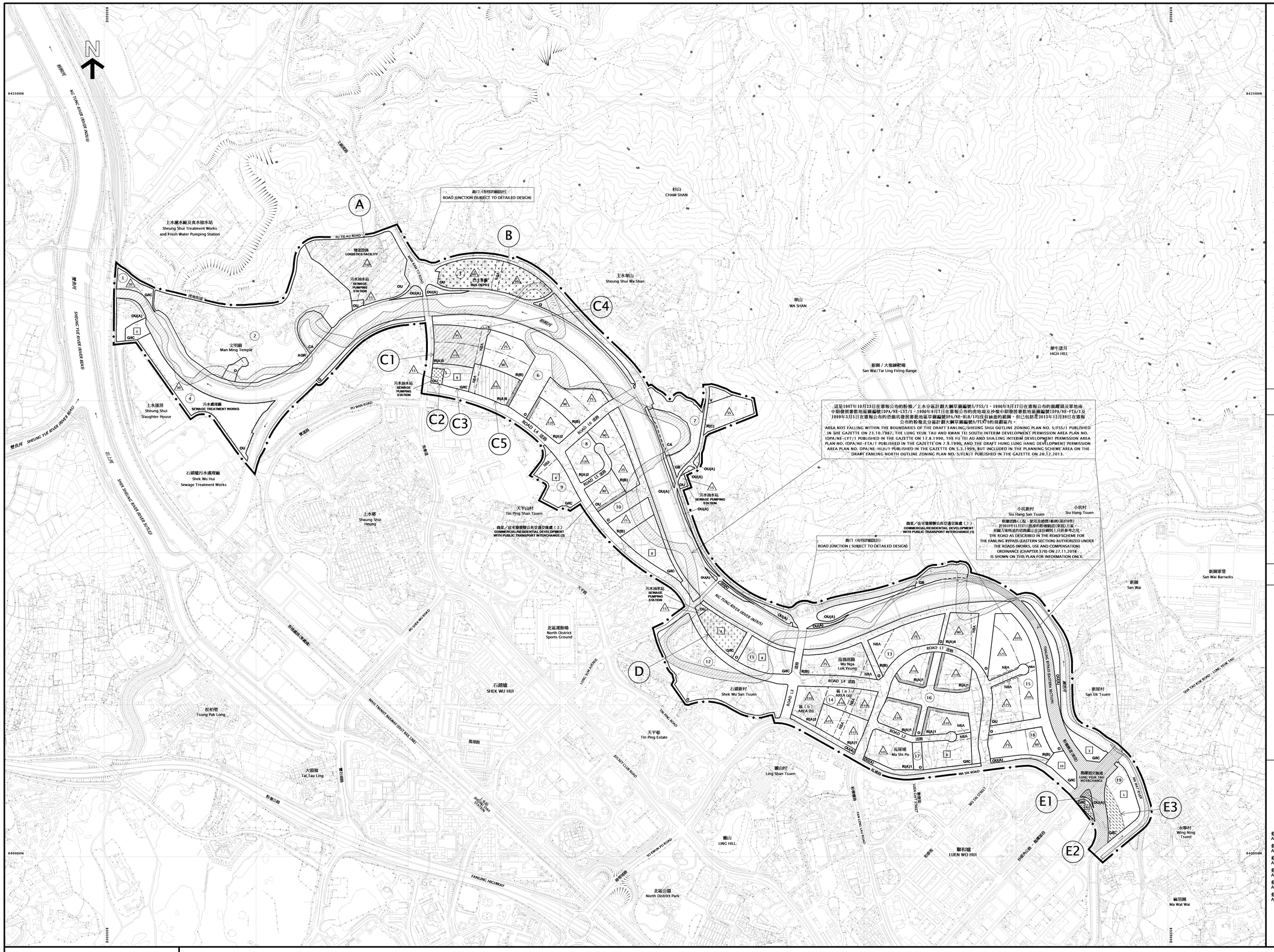
YUEN LONG CREEK OUTLET
YUEN LONG CREEK BRIDGE
YUEN LONG CREEK ROAD
YUEN LONG CREEK BRIDGE ROAD
YUEN LONG CREEK ROAD

Attachment II



圖例
NOTATION

ZONES		地帶
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
OTHER SPECIFIED USES (AMENITY AREA)	OU(A)	其他指定用途（美化市容地帶）
AGRICULTURE	AGR	農業
GREEN BELT	GB	綠化地帶
CONSERVATION AREA	CA	自然保育區
COMMUNICATIONS		**交通**
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路
MISCELLANEOUS		**其他**
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
PLANNING AREA NUMBER	1	規劃區編號
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	110	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	8	最高建築物高度（樓層數目）
TERRACED PODIUM		梯級式平台
NON-BUILDING AREA	NBA	非建築用地

這是1987年10月23日在憲報公布的粉嶺／上水分區計劃大綱草圖編號S/FSS/1、1990年8月17日在憲報公布的鷹嘴頭及軍地南中期發展審批地區圖編號DPA/NE-LYT/1、1990年9月7日在憲報公布的地地塊及沙頭中期發展審批地區圖編號DPA/NE-FTA/1及1998年3月5日在憲報公布的恐雹坑發展審批地區草圖編號DPA/NE-HLH/1均沒有涵蓋的範圍，但已包括在2013年12月20日在憲報公布的粉嶺北分區計劃大綱草圖編號S/FLN/1的規劃區內。

AREA NOT FALLING WITHIN THE BOUNDARIES OF THE DRAFT FANLING/SHEUNG SHUI OUTLINE ZONING PLAN NO. S/FSS/1 PUBLISHED IN SHE GAZETTE ON 23.10.1987, THE LING YEUK TAU AND KWAN TEI SOUTH INTERIM DEVELOPMENT PERMISSION AREA PLAN NO. IDPA/NE-LYT/1 PUBLISHED IN THE GAZETTE ON 17.8.1990, THE FU TEI AU AND SHA LING INTERIM DEVELOPMENT PERMISSION AREA PLAN NO. IDPA/NE-FTA/1 PUBLISHED IN THE GAZETTE ON 7.9.1990, AND THE DRAFT HUNG LUNG HANG DEVELOPMENT PERMISSION AREA PLAN NO. DPA/NE-HLH/1 PUBLISHED IN THE GAZETTE ON 5.3.1999, BUT INCLUDED IN THE PLANNING SCHEME AREA ON THE DRAFT FANLING NORTH OUTLINE ZONING PLAN NO. S/FLN/1 PUBLISHED IN THE GAZETTE ON 20.12.2013.

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
RESIDENTIAL (GROUP A)	17.23	10.43	住宅（甲類）
RESIDENTIAL (GROUP B)	12.08	7.31	住宅（乙類）
RESIDENTIAL (GROUP C)	1.24	0.75	住宅（丙類）
VILLAGE TYPE DEVELOPMENT	0.24	0.15	鄉村式發展
GOVERNMENT, INSTITUTION OR COMMUNITY	12.34	7.47	政府、機構或社區
OPEN SPACE	24.67	14.93	休憩用地
OTHER SPECIFIED USES	18.08	10.94	其他指定用途
OTHER SPECIFIED USES (AMENITY AREA)	5.04	3.05	其他指定用途（美化市容地帶）
AGRICULTURE	12.50	7.57	農業
GREEN BELT	2.44	1.48	綠化地帶
CONSERVATION AREA	2.22	1.34	自然保育區
RIVER CHANNEL	29.32	17.75	河道
MAJOR ROAD ETC.	27.81	16.83	主要道路等
TOTAL PLANNING SCHEME AREA	165.21	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分，
現經修訂並按照城市規劃條例第 5 條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

核准圖編號 S／F L N／2 的修訂
AMENDMENTS TO APPROVED PLAN No. S/FLN/2

按照城市規劃條例第 5 條展示的修訂
AMENDMENTS EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

修訂項目A項 AMENDMENT ITEM A
修訂項目B項 AMENDMENT ITEM B
修訂項目C1項 AMENDMENT ITEM C1
修訂項目C2項 AMENDMENT ITEM C2
修訂項目C3項 AMENDMENT ITEM C3
修訂項目C4項 AMENDMENT ITEM C4
修訂項目C5項 AMENDMENT ITEM C5
修訂項目D項 AMENDMENT ITEM D
修訂項目E1項 AMENDMENT ITEM E1
修訂項目E2項 AMENDMENT ITEM E2
修訂項目E3項 AMENDMENT ITEM E3

（參看附表）
(SEE ATTACHED SCHEDULE)

香港城市規劃委員會依據城市規劃條例擬備的粉嶺北分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
FANLING NORTH - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺

米 METRES 100 0 200 400 600 800 METRES 米

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. S/FLN/2A

~~APPROVED~~ *DRAFT* FANLING NORTH OUTLINE ZONING PLAN NO. S/FLN/2*A*

(Being ~~an Approved~~ ***a Draft*** Plan for the Purposes of the Town Planning Ordinance)

NOTES

(N.B. These form part of the Plan)

(1) These Notes show the uses or developments on land falling within the boundaries of the Plan which are always permitted and which may be permitted by the Town Planning Board, with or without conditions, on application. Where permission from the Town Planning Board for a use or development is required, the application for such permission should be made in a prescribed form. The application shall be addressed to the Secretary of the Town Planning Board, from whom the prescribed application form may be obtained.

(2) Any use or development which is always permitted or may be permitted in accordance with these Notes must also conform to any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, as may be applicable.

(3) For any land or building falling within the boundaries of this Plan and also previously falling within the boundaries of the plan for the Fu Tei Au and Sha Ling Interim Development Permission Area (IDPA) (hereafter referred to as "IDPA area"), and the Hung Lung Hang Development Permission Area (DPA) (hereafter referred to as "DPA area"), whichever the case may be –

(a) no action is required to make the use of such land or building conform to this Plan, if the use of such land or building was in existence immediately before the first publication in the Gazette of the notice of the IDPA Plan for Fu Tei Au and Sha Ling and/or the first DPA Plan for Hung Lung Hang covering such land or building, provided such use has continued since it came into existence. Any material change of such use or any other development (except minor alteration and/or modification to the development of the land or building in respect of such use which is always permitted) must be always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board;

(b) within the "IDPA area" and/or the "DPA area", a use or development of any land or building which has been permitted under an earlier draft or approved plan including the IDPA Plan for Fu Tei Au and Sha Ling and/or the first DPA Plan for Hung Lung Hang, whichever the case may be, and effected or undertaken during the effective period of that plan, is always permitted under this Plan. Alternatively, a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan or plans prevailing at the time when the use or change of use was approved, is also always permitted under this Plan. Any material change of such use or any other development (except minor alteration and/or modification to the completed development of the land or building which is always permitted) must be always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board;

(c) except to the extent that subparagraph (a) or (b) above applies, any use or development falling within the "IDPA area" and/or "DPA area", unless always permitted in terms of the Plan, shall not be undertaken or continued on or after the date of first publication in the Gazette of the notice of the IDPA Plan for Fu Tei Au and Sha Ling and/or the first DPA Plan for Hung Lung Hang, whichever the case may be, without permission from the Town Planning Board.

(4) For any land or building falling within the boundaries of this Plan but not previously falling within the "IDPA area" or the "DPA area" –

(a) no action is required to make the existing use of such land or building conform to this Plan until there is a material change of use or the building is redeveloped;

(b) in relation to subparagraph (a) above, any material change of use or any other development (except minor alteration and/or modification to the development of the land or building in respect of the existing use which is always permitted) or redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Town Planning Board;

(c) for the purposes of subparagraph (a) above, "existing use of such land or building" means -

(i) before the publication in the Gazette of the notice of the first plan covering the land or building (hereafter referred to as 'the first plan'),

- a use in existence before the publication of the first plan which has continued since it came into existence; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and

(ii) after the publication of the first plan,

- a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved; or
- a use or a change of use of an existing building in respect of which a certificate of exemption has been issued under the Buildings Ordinance (Application to the New Territories) Ordinance for the relevant building works and such use or change of use was permitted under a plan prevailing at the time when the use or change of use was approved;

(d) except to the extent that subparagraph (a) or (b) above applies, the use or development of such land or building, unless always permitted in terms of the Plan, shall not be undertaken or continued on or after the date when such land or building was first included within the boundaries of the Fanling/Sheung

Shui Outline Zoning Plan published by notice in the Gazette, whichever the case may be, without permission from the Town Planning Board.

(5) Except as otherwise specified by the Town Planning Board, when a use or material change of use is effected or a development or redevelopment is undertaken, as always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board, all permissions granted by the Town Planning Board in respect of the site of the use or material change of use or development or redevelopment shall lapse.

(6) Road junctions, alignment of roads and railway tracks, and boundaries between zones may be subject to minor adjustments as detailed planning proceeds.

(7) The following uses or developments are always permitted on land falling within the boundaries of the Plan except (a) where the uses or developments are specified in Column 2 of the Notes of individual zones or (b) as provided in paragraph (8) in relation to areas zoned "Conservation Area":

(a) maintenance, repair or demolition of a building;

(b) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, footpath, bus/public light bus stop or lay-by, cycle track, taxi rank, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;

(c) maintenance or repair of road, railway track, watercourse, nullah, sewer and drain;

(d) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works and waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government;

(e) rebuilding of New Territories Exempted House;

(f) replacement of an existing domestic building i.e. a domestic building which was in existence on the date of the first publication in the Gazette of the notice of a draft plan including the IDPA Plan for Fu Tei Au and Sha Ling and the first DPA Plan for Hung Lung Hang covering such building, whichever the case may be, by a New Territories Exempted House; and

(g) provision, maintenance or repair of a grave of an indigenous New Territories villager or a locally based fisherman and his family members for which permission has been obtained from Government.

(8) In areas zoned "Conservation Area",

(a) the following uses or developments are always permitted:

(i) maintenance or repair of plant nursery, amenity planting, sitting out area, rain shelter, refreshment kiosk, road, watercourse, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, shrine and

grave;

(ii) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and

(iii) provision of amenity planting by Government; and

(b) the following uses or developments require permission from the Town Planning Board;

provision of plant nursery, amenity planting (other than by Government), sitting out area, rain shelter, refreshment kiosk, footpath, public utility pipeline, electric mast, lamp pole, telephone booth and shrine.

(9) In any area shown as 'Road', all uses or developments except those specified in paragraphs (7)(a) to (7)(d) and (7)(g) above and those specified below require permission from the Town Planning Board:

road, toll plaza, on-street vehicle park, railway station and railway track.

(10) (a) Except in areas zoned "Conservation Area", temporary use or development of any land or temporary use of an existing building not exceeding a period of two months is always permitted provided that no site formation (filling or excavation) is carried out and that the use or development is a use or development specified below:

structures for carnivals, fairs, film shooting on locations, festival celebrations, religious functions or sports events.

(b) Except as otherwise provided in subparagraph (a), and subject to temporary uses for open storage and port back-up purposes which are prohibited in areas zoned "Conservation Area", temporary use or development of any land or temporary use of an existing building not exceeding a period of three years requires permission from the Town Planning Board. Notwithstanding that the use or development is not provided for in terms of the Plan, the Town Planning Board may grant permission, with or without conditions, for a maximum period of three years, or refuse to grant permission.

(c) Temporary use or development of land or temporary use of an existing building exceeding three years requires permission from the Town Planning Board in accordance with the terms of the Plan.

(11) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate permission is required.

(12) In these Notes, unless the context otherwise requires or unless as expressly provided below, terms used in the Notes shall have the meanings as assigned under section 1A of the Town Planning Ordinance.

"Existing building" means a building, including a structure, which is physically existing and is in compliance with any relevant legislation and the conditions of the Government lease concerned.

"New Territories Exempted House" means a domestic building other than a guesthouse or a hotel; or a building primarily used for habitation, other than a guesthouse or a hotel, the ground floor of which may be used as 'Shop and Services' or 'Eating Place', the building works in respect of which are exempted by a certificate of exemption under Part III of the Buildings Ordinance (Application to the New Territories) Ordinance (Cap. 121).

~~APPROVED~~ ***DRAFT*** FANLING NORTH OUTLINE ZONING PLAN NO. S/FLN/2***A***

Schedule of Uses

	Page
RESIDENTIAL (GROUP A)	1
RESIDENTIAL (GROUP B)	4
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VILLAGE TYPE DEVELOPMENT	8
GOVERNMENT, INSTITUTION OR COMMUNITY	10
OPEN SPACE	12
OTHER SPECIFIED USES	13
AGRICULTURE	~~16~~***18***
GREEN BELT	~~18~~***20***
CONSERVATION AREA	~~20~~***22***

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Transport Terminus or Station (not elsewhere specified) Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution School (not elsewhere specified) Shop and Services ***(not elsewhere specified)*** Training Centre

In addition, the following uses are always permitted (a) on the lowest two floors of a building excluding basements, or (b) in a free-standing purpose-designed non-domestic building up to five storeys :

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest two floors of a building excluding basements, or in a free-standing purpose-designed non-domestic building up to five storeys. For the "Residential (Group A) 3" ("R(A)3") and "Residential (Group A) 4" ("R(A)4") zone, the planning intention is purely for residential development.

Remarks

(a) On land designated "R(A)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 6 (of which the domestic plot ratio should not exceed 5), or the plot ratio of the existing building, whichever is the greater.

(b) On land designated "R(A)2", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 5 (of which the domestic plot ratio should not exceed 4), or the plot ratio of the existing building, whichever is the greater.

(c) On land designated "R(A)3", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 5, or the plot ratio of the existing building, whichever is the greater.

(d) On land designated "R(A)4", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 4, or the plot ratio of the existing building, whichever is the greater.

(e) On land designated "R(A)5", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 4.85 (of which the domestic plot ratio should not exceed 4.55), or the plot ratio of the existing building, whichever is the greater.

(f) On land designated "R(A)6", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 6.5 (of which the domestic plot ratio should not exceed 5.2), or the plot ratio of the existing building, whichever is the greater.

~~(e)~~***(g)*** On land designated "R(A)1", "R(A)2", "R(A)3"***,*** ~~and~~ "R(A)4"***, "R(A)5" and "R(A)6"***, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

~~(f)~~***(h)*** On land designated 'Terraced Podium' in the "R(A)1"***,*** ~~and~~ "R(A)2" ***and "R(A)6"*** zones, the terraced podium is subject to a maximum building height of 5m.

(Please see next page)

~~(g) In determining the maximum plot ratio for the purposes of paragraphs (a) to (d) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.~~

~~(Please see next page)~~

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(i) In determining the maximum plot ratio for the purposes of paragraphs (a) to (f) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

~~(h)~~***(j)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and/or building height restrictions stated in paragraphs (a) to ~~(f)~~***(h)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

~~(i)~~***(k)*** Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the non-building area restrictions as shown on the Plan may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) ~~Market~~ Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 3.5 and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater.

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and/or building height restrictions stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(d) Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the non-building area restrictions as shown on the Plan may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP C)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Utility Installation for Private Project	Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Institutional Use (not elsewhere specified) Library Petrol Filling Station Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Residential Institution School Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

(Please see next page)

RESIDENTIAL (GROUP C) (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 2 and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater.

(b) In determining the maximum plot ratio for the purposes of paragraph (a) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and/or building height restrictions stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

VILLAGE TYPE DEVELOPMENT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Government Use (Police Reporting Centre, Post Office only) House (New Territories Exempted House only) On-Farm Domestic Structure Religious Institution (Ancestral Hall only) Rural Committee/Village Office	Eating Place Flat Government Refuse Collection Point Government Use (not elsewhere specified)# House (not elsewhere specified) Institutional Use (not elsewhere specified)# ~~Market~~ Petrol Filling Station Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation# Public Vehicle Park (excluding container vehicle) Religious Institution (not elsewhere specified)# Residential Institution# School# Shop and Services Social Welfare Facility# Utility Installation for Private Project

In addition, the following uses are always permitted on the ground floor of a New Territories Exempted House:
Eating Place Library School Shop and Services

(Please see next page)

VILLAGE TYPE DEVELOPMENT (Cont'd)

Planning Intention

The planning intention of this zone is to provide land considered suitable for reprovisioning of village houses affected by Government projects. It is also intended to concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructures and services. Selected commercial and community uses serving the needs of the villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Town Planning Board.

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building (except development or redevelopment to those annotated with #) shall result in a total development and/or redevelopment in excess of a maximum building height of three storeys (8.23m) or the height of the existing building, whichever is the greater.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Animal Quarantine Centre (in Government building only) Broadcasting, Television and/or Film Studio Eating Place (Canteen, Cooked Food Centre only) Educational Institution Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Institutional Use (not elsewhere specified) Library Market Place of Recreation, Sports or Culture Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Research, Design and Development Centre Rural Committee/Village Office School Service Reservoir Social Welfare Facility Training Centre Wholesale Trade	Animal Boarding Establishment Animal Quarantine Centre (not elsewhere specified) Columbarium Correctional Institution Crematorium Driving School Eating Place (not elsewhere specified) Firing Range Flat Funeral Facility Helicopter Landing Pad Helicopter Fuelling Station Holiday Camp Hotel House (other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Private Club Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Refuse Disposal Installation (Refuse Transfer Station only) Residential Institution Sewage Treatment/Screening Plant Shop and Services ***(not elsewhere specified)*** Utility Installation for Private Project Zoo

Planning Intention

This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organisations providing social services to meet community needs, and other institutional establishments.

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storey(s) or metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(b) In determining the maximum number of storey(s) for the purposes of paragraph (a) above, any basement floor(s) may be disregarded.

(c) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(d) Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the non-building area restrictions as shown on the Plan may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

OPEN SPACE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Aviary Barbecue Spot Field Study/Education/Visitor Centre Park and Garden Pavilion Pedestrian Area Picnic Area Playground/Playing Field Promenade Public Convenience Sitting Out Area Zoo	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution Service Reservoir Shop and Services Tent Camping Ground Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

OTHER SPECIFIED USES

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Commercial/Residential Development with Public Transport Interchange" Only	
Ambulance Depot Flat Government Use (not elsewhere specified) Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution School (not elsewhere specified) Shop and Services ***(not elsewhere specified)*** Training Centre
In addition, the following uses are always permitted (a) on the lowest two floors of a building excluding basements, or (b) in a free-standing purpose-designed non-domestic building up to five storeys:	
Eating Place Educational Institution Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Private Club Public Convenience Recyclable Collection Centre School Shop and Services Training Centre	

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Commercial/Residential Development with Public Transport Interchange" Only (Cont'd)

Planning Intention

This zone is intended primarily for the provision of commercial and residential uses with public transport interchange. Commercial uses are always permitted on the lowest two floors of a building excluding basements, or in a free-standing purpose-designed non-domestic building up to five storeys.

Remarks

(a) On land designated "OU (Commercial/Residential Development with Public Transport Interchange (1))", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 5 (of which the domestic plot ratio should not exceed 4.5) and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater.

(b) On land designated "OU (Commercial/Residential Development with Public Transport Interchange (2))", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a total maximum plot ratio of 3.05 (of which the domestic plot ratio should not exceed 2.18) and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater.

(c) On land designated 'Terraced Podium' in the "OU (Commercial/Residential Development with Public Transport Interchange (2))" zone, the terraced podium is subject to a maximum building height of 5m.

(d) In determining the maximum plot ratio for the purposes of paragraphs (a) and (b) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(e) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and/or building height restrictions stated in paragraphs (a) to (c) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(f) Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the non-building area restrictions as shown on the Plan may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 *Uses always permitted*	*Column 2* *Uses that may be permitted with or without conditions on application to the Town Planning Board*

For "Logistics Facility" Only

Cargo Handling and Forwarding Facility
Container Storage/Repair Yard
Container Vehicle Park/Container Vehicle Repair Yard
Eating Place (Canteen, Cooked Food Centre only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Non-polluting Industrial Use (excluding industrial undertaking involving the use/storage of Dangerous Goods)
Office
Open Storage (not elsewhere specified)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Railway/Vehicle Depot
Shop and Services (Services Trades only)
Training Centre
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)
Wholesale Trade

Ambulance Depot
Bus Depot
Broadcasting, Television and/or Film Studio
Creative Industries
Dangerous Goods Godown
Eating Place (not elsewhere specified)
Exhibition or Convention Hall
Industrial Use (not elsewhere specified)
Open Storage of Cement/Sand
Open Storage of Chemical Products/ Dangerous Goods
Petrol Filling Station
Place of Recreation, Sports or Culture
Public Clinic
Research, Design and Development Centre
Refuse Disposal Installation
Rural Workshop
Shop and Services (not elsewhere specified)
Social Welfare Facility
Vehicle Repair Workshop

Planning Intention

This zone is intended primarily for development of modern logistics facilities to complement the development of Hong Kong as a Regional Distribution Centre and Logistics Hub.

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 7 and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and/or building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

~~For "Parking and Operation Facilities for Environmentally Friendly Transport System" Only~~

~~Parking and Operation Facilities for Environmentally Friendly Transport System~~
~~Government Refuse Collection Point~~
~~Government Use (not elsewhere specified)~~
~~Public Utility Installation~~
~~Utility Installation for Private Project~~

~~Planning Intention~~

~~This zone is intended for the provision of parking and operation facilities for environmentally friendly transport system.~~

For "Bus Depot" Only

Bus Depot
Container Vehicle Park
Eating Place
Government Use
Petrol Filling Station
Public Convenience
Public Utility Installation
Public Vehicle Park
Vehicle Repair Workshop
Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of multi-storey bus depots and public heavy goods vehicle parks.

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Amenity Area" Only

Amenity Planting	Government Use Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended primarily for the provision of landscaping and planting to enhance the environment.

For All Other Sites (Not Listed Above)

As Specified on the Plan	Government Use (not elsewhere specified) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily to provide/reserve land for specific purposes and uses.

Remarks

(a) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(b) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (a) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

AGRICULTURE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Government Use (Police Reporting Centre only) On-Farm Domestic Structure Public Convenience Religious Institution (Ancestral Hall only) Rural Committee/Village Office	Animal Boarding Establishment Barbecue Spot Burial Ground Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) House (New Territories Exempted House only, other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes) Picnic Area Place of Recreation, Sports or Culture (Horse Riding School, Hobby Farm, Fishing Ground only) Public Utility Installation Religious Institution (not elsewhere specified) School Utility Installation for Private Project

Planning Intention

This zone is intended primarily to retain and safeguard good quality agricultural land/farm/fish ponds for agricultural purposes. It is also intended to retain fallow arable land with good potential for rehabilitation for cultivation and other agricultural purposes.

(Please see next page)

AGRICULTURE (Cont'd)

Remarks

(a) On land previously falling within the "Agriculture" zone on the Fu Tei Au and Sha Ling OZP No. S/NE-FTA/12, any filling of pond, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes (except public works co-ordinated or implemented by Government, and maintenance, repair or rebuilding works), shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the Fu Tei Au and Sha Ling interim development permission area plan without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

(b) On land previously falling within the "Agriculture" zone on the Fu Tei Au and Sha Ling OZP No. S/NE-FTA/12, any filling of land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes (except public works co-ordinated or implemented by Government, and maintenance, repair or rebuilding works), shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Fu Tei Au and Sha Ling Outline Zoning Plan No. S/NE-FTA/8 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance. This restriction does not apply to filling of land specifically required under prior written instructions of Government department(s) or for the purposes specified below:

(i) laying of soil not exceeding 1.2m in thickness for cultivation; or

(ii) construction of any agricultural structure with prior written approval issued by the Lands Department.

(c) On land not previously falling within the "Agriculture" zone on the Fu Tei Au and Sha Ling OZP No. S/NE-FTA/12, as set out in paragraphs (a) and (b) above, any filling of pond/land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes (except public works co-ordinated or implemented by Government, and maintenance, repair or rebuilding works), shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Fanling North Outline Zoning Plan No. S/FLN/1 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance. This restriction does not apply to filling of land specifically required under prior written instructions of Government department(s) or for the purposes specified below:

(i) laying of soil not exceeding 1.2m in thickness for cultivation; or

(ii) construction of any agricultural structure with prior written approval issued by the Lands Department.

GREEN BELT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Barbecue Spot Government Use (Police Reporting Centre only) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Public Convenience Tent Camping Ground Wild Animals Protection Area	Animal Boarding Establishment Broadcasting, Television and/or Film Studio Burial Ground Columbarium (within a Religious Institution or extension of existing Columbarium only) Crematorium (within a Religious Institution or extension of existing Crematorium only) Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Helicopter Landing Pad Holiday Camp House (other than rebuilding of New Territories Exempted House or replacement of existing domestic building by New Territories Exempted House permitted under the covering Notes) Petrol Filling Station Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Religious Institution Residential Institution Rural Committee/Village Office School Service Reservoir Social Welfare Facility Utility Installation for Private Project

Planning Intention

The planning intention of this zone is primarily for defining the limits of urban and sub-urban development areas by natural features, to protect the natural landscape and environment, as well as to provide an ecological buffer for adjacent meander. There is a general presumption against development within this zone.

(Please see next page)

GREEN BELT (Cont'd)

Remarks

Any filling of pond/land and excavation of land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes (except public works co-ordinated or implemented by Government, and maintenance, repair or rebuilding works), shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Fanling North Outline Zoning Plan No. S/FLN/1 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

CONSERVATION AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use (other than Plant Nursery) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Wild Animals Protection Area	Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) House (Redevelopment only) Public Convenience Public Utility Installation Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Tent Camping Ground

Planning Intention

This zoning is intended to protect and retain the existing natural landscape, ecological, or topographical features of the area for conservation, educational and research purposes, and to separate sensitive natural environment from the adverse effects of development.

There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.

(Please see next page)

CONSERVATION AREA (Cont'd)

Remarks

(a) No redevelopment, including alteration and/or modification, of an existing house, shall result in a total redevelopment in excess of the plot ratio, site coverage and height of the house which was in existence on the date of the first publication in the Gazette of the notice of the draft Fanling North Outline Zoning Plan No. S/FLN/1.

(b) Any filling of pond/land and excavation of land, including that to effect a change of use to any of those specified in Columns 1 and 2 above or the uses or developments always permitted under the covering Notes, shall not be undertaken or continued on or after the date of the first publication in the Gazette of the notice of the draft Fanling North Outline Zoning Plan No. S/FLN/1 without the permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

~~APPROVED~~ *DRAFT* FANLING NORTH OUTLINE ZONING PLAN NO. S/FLN/2*A*

EXPLANATORY STATEMENT

~~Approved~~ *Draft* Fanling North Outline Zoning Plan No. S/FLN/2*A*

Explanatory Statement

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~~APPROVED~~ *DRAFT* FANLING NORTH OUTLINE ZONING PLAN NO. S/FLN/2*A*

(Being ~~an Approved~~ ***a Draft*** Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

Note : For the purposes of the Town Planning Ordinance, this statement shall not be deemed to constitute a part of the Plan.

1. INTRODUCTION

This Explanatory Statement is intended to assist an understanding of the ~~approved~~ ***draft*** Fanling North Outline Zoning Plan (OZP) No. S/FLN/2***A***. It reflects the planning intentions and objectives of the Town Planning Board (the Board) for various land use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURE

2.1 The OZP for the Fanling North New Development Area (NDA) included areas previously covered by the Fu Tei Au and Sha Ling Interim Development Permission Area (IDPA) Plan No. IDPA/NE-FTA/1, the Hung Lung Hang Development Permission Area (DPA) Plan No. DPA/NE-HLH/1 and the Fanling/Sheung Shui OZP No. S/FSS/1, and the previous river channel of Ng Tung River before training which was not covered by any statutory plan. (**Figure 1**).

2.2 On 22 August 2012 and 4 December 2013, under the power delegated by the Chief Executive, the Secretary for Development directed the Board, under section 3(1)(a) of the Town Planning Ordinance (the Ordinance), to prepare a draft plan for the Fanling North NDA. The land in the northern part of approved Fanling/Sheung Shui OZP No. S/FSS/18, the land in the southern part of the approved Fu Tei Au and Sha Ling OZP No. S/NE-FTA/12, and a small portion of land at the southern tip of the approved Hung Lung Hang OZP No. S/NE-HLH/7 were excised for incorporation into the new Fanling North OZP. The new OZP also includes the previous river channel of Ng Tung River not covered by any statutory plan (**Figure ~~2~~*1***).

2.3 On 20 December 2013, the draft Fanling North OZP No. S/FLN/1 was exhibited for public inspection under section 5 of the Ordinance. ~~During the exhibition period, a~~***A*** total of 21,117 valid representations ~~were received. On 15 April 2014, the Board published the representations for three weeks for public comments~~ and a total of 6,007 valid comments were received. ~~On 25 September 2014, the Chief Executive, under section 8(2) of the Ordinance, agreed to extend the statutory time limit for the Board to submit the draft OZP to the CE in C for approval for a period of six months from 20 November 2014 to 20 May 2015 as more time was required to complete the hearing of the large amount of representations and comments.~~ After giving consideration to the representations and comments on 28 and 29 April 2015, the Board decided not to propose any amendment to the draft OZP to meet the representations.

2.4 On 16 June 2015, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Fanling North OZP, which was subsequently renumbered as S/FLN/2. ~~On 19 June 2015, the approved Fanling North OZP No. S/FLN/2 (the Plan) was exhibited for public inspection under section 9(5) of the Ordinance.~~

2.5 On 31 May 2022, the CE in C referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 10 June 2022 under section 12(2) of the Ordinance.

2.6 On xx.xx.xxxx, the draft Fanling North OZP No. S/FLN/3 (the Plan) was exhibited for public inspection under section 5 of the Ordinance. The major amendments incorporated on the Plan include the rezoning of two sites in Planning Area 3 from "Government, Institution or Community" ("G/IC") to "Other Specified Uses" ("OU") annotated "Logistics Facility" and "Bus Depot" respectively; and rezoning a site from "OU" annotated "Parking and Operation Facilities for Environmentally Friendly Transport System" to "Residential (Group A) 5" ("R(A)5") in Planning Area 5.

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land use zones and major road network for the Fanling North NDA so that development and redevelopment of land within the area can be put under statutory planning control. It also provides the planning framework for preparing more detailed non-statutory plans which form the basis for public works planning and site reservation for various uses.

3.2 The Plan is to illustrate the broad principles of development and planning control only. It is a small-scale plan and the road alignments and boundaries between the land use zones may be subject to minor alterations as detailed planning and development proceed.

3.3 Since the Plan is to show broad land use zonings, there would be situations in which small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas should not be taken into account in plot ratio and site coverage calculation. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the Fanling North NDA and not to overload the road network in this area.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Planning Scheme Area and in particular zones and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and control of development to meet changing

needs.

4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services Division of the Planning Department and can be downloaded from the Board's website at http://www.info.gov.hk/tpb.

5. THE PLANNING SCHEME AREA

The Planning Scheme Area (the Area) covered by the Fanling North OZP is about 165 ha. The Area is bounded by Wa Shan and Cham Shan in the north, Ma Wat River in the east, Ma Sik Road in the south, Ng Tung River in the south-west, and Sheung Yue River in the west. The boundary of the Area is shown by a heavy broken line on the Plan. For planning and reference purposes, the Area is sub-divided into a number of smaller planning areas as shown on the Plan (**Figure ~~3~~*2***).

6. STRATEGIC PLANNING CONTEXT

In view of continued population growth, increase in number of households and public aspirations for more housing supply, the Fanling North NDA would be an important component in the overall strategy to provide housing land for Hong Kong in the medium-to long-term. As extensions of the Fanling/Sheung Shui New Town, the Fanling North and Kwu Tung North NDAs will be integrated to form the Fanling/Sheung Shui/Kwu Tung (FL/SS/KT) New Town, which will have a total population of about ~~460,000~~ ***603,800*** upon full development. The existing and new Government, Institution or Community (G/IC) facilities and open spaces in the NDAs would be shared by the existing and new residents of the FL/SS/KT New Town.

7. HOUSING MIX

7.1 To provide a balanced population profile for the Area, a mix of housing land has been allocated for public and subsidised housing and various types of private housing to provide a wide range of housing choices for different social sectors. The overall public to private housing ratio in terms number of flats for the Kwu Tung North and Fanling North NDAs is about ~~60:40~~ ***67:33*** to ensure a balanced and socially integrated community.

7.2 For the Fanling North NDA, the planned population is around ~~68:32~~ ***73:27*** in public and private housing developments. It is noted that some sites have been reserved for public rental housing (PRH)/~~Home Ownership Scheme (HOS)~~***Subsidised Sale Flat (SSF)*** use or a mix of them to cater for the future demand for subsidised housing. This allows flexibility for provision of PRH and ~~HOS~~ ***SSF*** units within individual sites. The mix of PRH and ~~HOS~~ ***SSF*** units within individual sites would be further considered upon implementation of the developments, subject to further technical assessments if necessary.

8. POPULATION

~~According to the 2011 Census~~ ***Based on the 2016 Population By-census***, the

population of the Area ***estimated by the Planning Department*** was about ~~950~~ ***750*** persons. It is estimated that the total planned population ~~of the Area~~ would be about ~~71,400~~ ***95,300***

9. OPPORTUNITIES AND CONSTRAINTS

9.1 Opportunities

Locational Advantage

9.1.1 The Area enjoys a strategic location abutting the existing Fanling/Sheung Shui New Town to its south. Residents of the Fanling North NDA will have convenient access to existing shops and services, G/IC facilities as well as public transport and existing road networks in the Fanling and Sheung Shui area. At the same time, residents in the existing New Town will be able to make use of new public infrastructure, various commercial, community, recreational, open space, and social welfare facilities as well as have access to job opportunities to be provided within the Area.

Nature and Landscape Setting

9.1.2 The channelised Ng Tung River running across the Area and the green mountainous areas of Cheung Po Tau, Cham Shan, Wa Shan, High Hill and Ma Tau Leng to the north provide opportunities for planning and design of the Area based on a 'riverside community' theme with a natural green backdrop afforded by the surrounding mountains in the north.

Leisure and Recreation Potential and Cultural Heritage

9.1.3 Ng Tung River provides opportunities for providing riverside promenade and open spaces for enjoyment by residents in the Area. A graded historic building, namely Man Ming Temple, is located in the Area. Part of the Sheung Shui Wa Shan Site of Archaeological Interest is also located in the Area. Located to the east immediately outside the Area is the renowned Lung Yeuk Tau Heritage Trail, which links many traditional Chinese buildings and structures together with the walled villages such as Lo Wai and San Wai. Preservation of the historic building and good linkages to the heritage trail could help incorporate the valuable historic resources into the NDA development for the benefits of future residents and visitors.

9.2 Constraints

Environmental Constraints

9.2.1 The Sheung Shui Water Treatment Works, which is a potentially hazardous installation (PHI), is located to the north-west just outside the Area, but its 1km Consultation Zone covers the western portion of the Fanling North NDA. Sheung Shui Slaughter House and Shek Wu Hui Sewage Treatment Works located immediately to the north-west of

the Area also impose environmental constraints to the NDA development.

Infrastructural Constraints

9.2.2 The north-western part of the Area is traversed by the 400kV overhead power lines and the existing Dongjiang water mains running east-west near Fu Tei Au pose constraints to land use planning as these will limit the types of structure to be built thereon.

9.2.3 Sha Tau Kok Road and Po Shek Wu Road are currently busy road corridors. Several key junctions, e.g. Po Shek Wu Interchange, are near their capacity limits.

9.2.4 The Area falls within the Deep Bay catchment and is subject to the requirement that no additional pollution load should be discharged into the Deep Bay as a result of any new development. Apart from provision of sewage treatment facilities, measures to improve the quality of existing sewage discharge is required to ensure no net increase of pollution load to the Deep Bay Area.

Ecologically Sensitive Area

9.2.5 Due consideration should be paid to ecological resources within and in the vicinity of the Area, including Ng Tung River and some of the meanders, Man Kam To Road egretry together with its associated flight paths and Siu Hang San Tsuen Stream, to avoid/minimise adverse effects on their ecological value and natural habitats.

Permitted Burial Ground

9.2.6 Two permitted burial grounds are located immediately to the north of the Area (one to the north of Fu Tei Au Road and the other to the north of the indigenous village of Sheung Shui Wa Shan). No development should be encroached upon these areas.

Flooding Risk

9.2.7 The Area is situated in a low-lying land beside Ng Tung River and subject to flooding risk. Site formation and the drainage system should be designed to minimise flooding risk to the planned developments and the nearby existing settlements.

10. PLANNING THEMES AND URBAN DESIGN AND LANDSCAPE FRAMEWORK

10.1 Planning Themes

The Fanling North NDA would be developed as a 'Riverside Community' making the best use of its beautiful riverside scenery and hilly backdrop to provide a quality living environment with a mix of residential, commercial and agricultural uses as well as retail and services, community and government

facilities. The major planning themes adopted in planning and designing the Fanling North NDA are as follows :

Integration of New and Old Communities

10.1.1 To take advantage of the geographical proximity of the Area to the Kwu Tung North NDA and Fanling/Sheung Shui New Town, a comprehensive pedestrian walkway system and cycle track network is planned to ensure good connectivity between these areas. These would promote the shared use of community, recreational and commercial facilities, and enhance employment opportunities within the district.

Balanced and Socially Integrated Communities

10.1.2 To provide a balanced population profile for the Area, a mix of housing land has been allocated for public/subsidised housing and various types of private housing to provide a wide range of housing choices for different social sectors. Sufficient land has been designated for commercial, shopping and various G/IC uses, which in turn create new jobs for the communities. The various G/IC facilities and open spaces could serve the wider communities.

Environmentally Friendly Design

10.1.3 To pursue a green living environment, a compact city form is adopted in the Fanling North NDA with a majority of the new population concentrated near the public transport interchanges which provide connections with the ~~East Rail Stations~~ ***railway stations***. Comprehensive pedestrian and cycle track networks will be provided within the Area to encourage walking and promote cycling so as to minimise road traffic. Fanling Bypass, which serves as the primary distributor and main district distributor to the wider area, is planned at the periphery of the Area to minimise noise and air pollution.

Sustainable and Quality Living Environment

10.1.4 The planning and design for the Fanling North NDA adopts a sustainable development approach, balancing the housing, employment, community and conservation needs, and encompassing the economic, social and environmental considerations. Various urban design and greening features have been incorporated in the layout to achieve a quality living environment. High priority has been accorded to ‘sustainability design’ and ‘social consideration’.

Respecting Nature and Promoting Agriculture

10.1.5 Ng Tung River and the natural ridgelines to the north have been respected in the layout design of the Fanling North NDA. About 12 ha of agricultural land in Fu Tei Au have been conserved in the NDA to allow continuation of the agricultural activities.

10.2 Urban Design and Landscape Framework

A comprehensive planning and urban design framework optimising opportunities afforded by the Area and the adjoining Fanling/Sheung Shui New Town and the surrounding natural and landscape features has been formulated to create a quality living environment and socially integrated communities. Four character areas connected by a comprehensive open space network are planned within the Fanling North NDA, including the District Centre, Residential Area South of the River, Civic and Recreation Area and Government Facilities Zone (**Figure ~~4~~*3***). The following urban design and landscape principles are adopted in the Plan :

Creating Nodes

10.2.1 Two district nodes with a mix of residential use, retail, social and community facilities, public transport interchanges and public open space will be provided in the eastern portion to the immediate north of the existing market town of Luen Wo Hui (i.e. the District Centre) and in the western portion to the north of Tin Ping Shan Tsuen (i.e. the Residential Area South of the River) respectively to serve as major activity nodes of the Area. To create a social and recreational hub easily accessible by the residents of the Area and the existing communities in Fanling/Sheung Shui New Town, the existing Shek Wu San Tsuen area, which is centrally located, will be developed into the Central Park with social welfare and recreational facilities in the vicinity, forming the civic core of the Area.

Forming a Compact City

10.2.2 Most high-density residential developments, workplace, leisure/ entertainment and public service facilities are planned within the 500m catchments of the public transport interchanges in the two district nodes to offer the majority of residents convenient and comfortable access to public transport and supporting retail and recreational facilities. A comprehensive pedestrian, cycle track and open space network (**Figures ~~5~~*4* and ~~6~~*5***) linking the residential areas and major activity nodes with the public transport interchanges will be provided.

Connecting the Neighbourhoods

10.2.3 Four green spines stretching from Fung Kai Secondary School, Tin Ping Shan Tsuen, Luen Chit Street and Wo Tai Street to the two district nodes have been planned to provide easy access for pedestrians between the Fanling North NDA and the Fanling/Sheung Shui areas. A comprehensive cycle track network (**Figure ~~6~~*5***) is also planned with linkages to the existing cycle track network in the Fanling/Sheung Shui area and the cycle track network planned in the Kwu Tung North NDA.

Creating a Pedestrian Friendly Environment

10.2.4 Pedestrian footpaths will be provided along the north-south open space corridors and east-west riverside promenade to link up the residential areas with major activity nodes and public open spaces. Pedestrian shopping street with terraces lined with retail shops, cafés and

restaurants is planned in the District Centre and Residential Area South of the River to promote street vibrancy. Sufficient space is also reserved for amenity strips along the streets to provide a leisure walking environment.

Creating a Comprehensive Cycle Track Network

10.2.5 Cycle tracks are planned along the open space spines and riverside promenade along Ng Tung River (**Figure ~~6~~*5*). Cycle parking areas are proposed close to the public transport interchanges and major activity centres to facilitate the use of public transport.

Green Civic and Recreation Cores

10.2.6 The Central Park and the riverside promenade serve as green civic and recreation cores linking the residential areas. Major green corridors and secondary green corridors are designed in the form of tree avenues, boulevards, pedestrian streets and green walkways which make the Area visually coherent in terms of the continuity of tree and shrub planting and allow where possible continuous and safe pedestrian access throughout the NDA.

Roadside Landscape

10.2.7 The streetscape contributes to the landscape framework of the NDA. The roadside landscape would incorporate a tree lined avenue on both sides of the primary, district and local distributor roads ~~including Fanling Bypass Eastern Section (part), Fanling Bypass Western Section (part), Road L1, Road L2, Road L3, Road L4, Road L5, Road L6 and Road L7~~ wherever possible with modern and contemporary hard landscape treatments (**Figure ~~7~~*6***).

11. BUILDING HEIGHT RESTRICTIONS IN THE AREA

11.1 In order to provide better control on the building height of developments in the Area and to preserve some key urban design attributes (e.g. stepped building height from the town centres towards the periphery and riverside and preservation of visual corridors to the ridgelines), building height restrictions are imposed for the development zones on the Plan.

11.2 Based on the urban design framework mentioned above, a stepped building height concept is recommended with the overall development intensity and building height profile stepping down from district nodes towards the periphery and riverside to enhance variety in height and massing of new developments and to ensure a better integration with the adjacent rural setting. In the District Centre, development sites in the central area generally have higher building heights. The building heights then descend gradually ~~from the centre~~ towards the riverside. For the Residential Area South of the River, development sites along the riverside in general have lower building heights. The building heights then rise gradually from the periphery towards the central area of the district node. Different building height control zones are introduced within the development sites along the river to further enhance the

stepped building height concept towards the riverside.

11.3 Specific building height restrictions for the ~~"Government, Institution or Community" (~~"G/IC"~~)~~ and ~~"Other Specified Uses" (~~"OU"~~)~~ zones in terms of number of storey(s) or mPD, where appropriate, which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan to provide visual and spatial relief to the Area.

11.4 For any site which covers a relatively large area, the development should be designed with a view to providing a variation in the height profile within the site, whilst not exceeding the maximum building height specified on the Plan.

11.5 An Expert Evaluation on Air Ventilation Assessment (AVA) has been undertaken to assess the existing wind environment and the likely impact of the proposed building heights of the development sites within the Area on the pedestrian wind environment. The building height restrictions shown on the Plan have taken the findings of the AVA into consideration.

11.6 In general, a minor relaxation clause in respect of the building height restrictions is incorporated into the Notes of the Plan in order to provide incentive for development/redevelopments with planning and design merits. Each planning application under section 16 of the Ordinance will be considered on its own merits.

Non-building Areas (NBAs)

11.7 According to the findings of the AVA, the prevailing annual wind comes from the eastern quadrant, and the prevailing summer wind mainly comes from the south-western quadrant. A number of major breezeways/air paths have been incorporated in the layout to enhance penetration of wind which is aligned approximately in south-west to north-east and east to west directions. They include the major open space spines in the Residential Area South of the River, the low-rise "G/IC" zones and the Central Park in the Civic and Recreation Area, and the major open space spines in the District Centre (**Figure 4*3***). The north-east/south-west and east/west local roads also serve as important breezeways/air paths for the Area. These unobstructed breezeways/air paths allow the prevailing winds to penetrate into the built environment of the Area as well as the downstream Fanling/Sheung Shui area.

11.8 The AVA recommends a few strips of non-building areas (NBAs) for better penetration of the prevailing winds. Besides, a NBA is designated within "R(A)4" in Planning Area 15 to provide a wider vista. NBAs proposed on the Plan are as follows :

(a) four NBAs running in north-east to south-west direction are designated within "R(A)1", "R(A)3" and "R(B)" sites in Planning Areas 13 and 14 to divert wind to penetrate through these sites to the Fanling area;

(b) a 30m-wide NBA running in north-east to south-west direction is designated within the "OU" annotated "Commercial/Residential Development with Public Transport Interchange (1)" to the east of Road L1 in Planning Area 15 to divert wind through the east-west shopping street to the inner parts of the Area;

(c) a 10m-wide NBA and a 20m-wide NBA running in east to west direction are designated respectively along the southern edge of the "R(A)1" site in Planning Area 16 and the northern edge of the "G/IC" site in Planning Area 17 to facilitate the penetration of wind from the east to the Fanling North NDA;

(d) a 20m-wide NBA running in north-east to south-west direction is designated within the ~~"G/IC"~~ ***"OU" annotated "Bus Depot"*** to the east of Man Kam To Road in Planning Area 3***, the "R(A)5" in Planning Area 5 and the "R(A)6" in Planning Area 6*** to facilitate the penetration of wind from the north-east to the Fanling North NDA;

(e) a 30m-wide NBA running in north-east to south-west direction is designated within the "G/IC" in the north part of Planning Area 9 to facilitate the penetration of wind through the Fanling North NDA to the Sheung Shui area; and

(f) a NBA running in south to north direction is designated within "R(A)4" at the riverside in Planning Area 15 to maintain a wider vista to High Hill from the entrance of the major open space corridor stretching from Wo Tai Street.

11.9 To improve wind penetration at pedestrian level, large and bulky podium development is discouraged in the Area. ~~In general, permeable podium design up to two storeys is to be adopted.~~ For development sites along the pedestrianised shopping street in the cores of the District Centre and Residential Area South of the River, a two-storey terraced podium will be provided in these sites to enhance vibrancy at street level as well as to direct downward airflow to the pedestrian level. Podium-free design is adopted in sites for pure residential development to improve wind penetration at street level. The urban design guidelines for improving air ventilation stipulated in Chapter 11 of the Hong Kong Planning Standards and Guidelines (HKPSG) and the Technical Circular and Technical Guide on Air Ventilation Assessment should be referred to in the detailed design for the developments.

11.10 Minor relaxation of the NBA restriction may be considered by the Board on application under section 16 of the Ordinance. Within the NBAs stipulated on the OZP, landscaping and street furniture and underground structures will be permitted. For residential sites, fence or boundary walls that are designed to allow for high visual/air porosity will be allowed in the NBAs.

11.11 The riverside promenade along Ng Tung River and the Central Park in Planning Area 12 provide visual and spatial relief in the Area. Meanwhile, the Central Park and the north-south open space spines serve as major view corridors to protect the long-range views toward the green backdrop in the north (**Figure 4*3***). Open space spines perpendicular to Ng Tung River will be provided to enhance visual permeability of the Area.

12. LAND USE ZONINGS

12.1 "Residential (Group A)" ("R(A)") : Total Area ~~14.87~~ ***17.23*** ha

12.1.1 This zone is intended primarily for high-density residential developments. All of them are located near the two proposed public transport interchanges to make good use of the public transport. The "R(A)" zone includes sites for PRH, ~~HOS~~***SSF*** and private residential developments in the District Centre and Residential Area South of the River of the Area (**Figure 4*3***). For "R(A)1"***,*** ~~and~~ "R(A)2"***, "R(A)5" and "R(A)6"*** zones, commercial uses are always permitted on the lowest two floors of a building excluding basements, or in a free-standing purpose-designed non-domestic building up to five storeys. Terraced commercial podium up to two storeys in the core of the District Centre is recommended. Also, purpose-designed non-residential buildings of up to five storeys may allow flexibility for provision of greater floorspace for commercial and G/IC facilities to cater for special needs while at the same time avoid bulky podium structures to minimise any possible adverse air ventilation and visual impacts. For the "R(A)3" and "R(A)4" zones, the planning intention is purely for residential development. ~~To allow design flexibility and better layout, some provisions of public open space and amenity areas have been incorporated in some PRH/HOS sites to be developed by the Housing Department (HD). The public open space and amenity areas will be handed over to the Government for management and should not be included in the plot ratio calculation of the PRH/HOS development.~~

12.1.2 This zoning includes ~~four~~***six*** sub-zones which are subject to the following development restrictions :

"Residential (Group A)1" ("R(A)1") : Total Area 7.53 ha

(a) A total of six sites are designated "R(A)1" in the District Centre. Developments on the sites are subject to a total maximum plot ratio of 6 (of which the domestic plot ratio should not exceed 5) and a maximum building height ranging from 105mPD to 115mPD. Among them, four sites in Planning Area 16 and one site in Planning Area 14 are intended for high-density private residential development. For the "R(A)1" site in Planning Area 17 near Ma Shi Po, it is reserved for PRH/~~HOS~~***SSF*** development and flexibility is allowed for provision of PRH and ~~HOS~~***SSF*** housing or a mix of them to cater for the future demand for subsidised housing.

"Residential (Group A)2" ("R(A)2") : Total Area ~~3.73~~ ***2.43*** ha

(b) ~~Three~~***Two*** sites for PRH/~~HOS~~***SSF*** developments are designated "R(A)2" in Planning Areas 6 and 8, which is abutting Road L4 in the Residential Area South of the River. Developments in these sites are subject to a total maximum plot ratio of 5 (of which the domestic plot ratio should not exceed 4) and a maximum building height of 120mPD. Commercial uses provided in these sites would serve both the new and existing neighbourhoods such as Tin Ping Shan Tsuen and Sheung Shui Heung.

Terraced Podium in "R(A)1"***, "R(A)2"*** and "R(A)~~2~~***6***" Sites

(c) For the four "R(A)1" sites in Planning Area 16 and ~~two~~ ***one*** "R(A)2" site***s and one "R(A)6" site both*** in Planning Area 6, terraced podium lined with retail frontage along site boundaries abutting the open space should be provided. Land designated as 'Terraced Podium' is subject to a maximum building height of 5m and 10m-wide set back at first floor level. This terraced design could promote pedestrian experience and enhance air ventilation at street level. 'Shop and Services' and 'Eating Place' uses should be provided along the site boundaries abutting the open space to ensure continuous shop frontages and the provision of commercial and leisure facilities such as café, restaurants and retail shops on the side lining the pedestrian shopping street, thus contributing to the vibrancy and character of the area.

"Residential (Group A)3" ("R(A)3") : Total Area 2.37 ha

(d) A site designated "R(A)3" in Planning Area 14 is planned for pure residential developments subject to a maximum plot ratio of 5.0 and a maximum building height of 110mPD. Area (a) at the eastern portion is earmarked specifically for ~~HOS~~***SSF*** development ensuring the provision of ~~HOS~~***SSF*** to cater for the future development whereas Area (b) at western portion is intended for high-density private residential development. Podium development within these sites is discouraged.

"Residential (Group A)4" ("R(A)4") : Total Area 1.24 ha

(e) A site in the western part of Planning Area 15 at the riverside is designated "R(A)4". It is planned for pure residential development and is subject to a maximum plot ratio of 4.0 and a maximum building height of 90mPD. This site is intended for PRH/~~HOS~~***SSF*** development and podium development within this site is discouraged.

"Residential (Group A)5" ("R(A)5") : Total Area 2.15 ha

(f) A site in the northern part of Planning Area 5 at the riverside is designated "R(A)5". It is planned for PRH/SSF development and is subject to a total maximum plot ratio of 4.85 (of which the domestic plot ratio should not exceed 4.55) and a maximum building height ranging from 95mPD to 110mPD.

"Residential (Group A)6" ("R(A)6") : Total Area 1.5 ha

(g) A site for PRH/SSF development is designated "R(A)6" in the south-western part of Planning Area 6, which is abutting Road L4 in the Residential Area South of the River. Development in the site is subject to a total maximum plot ratio of 6.5 (of which the domestic plot ratio should not exceed 5.2) and a maximum building height of 145mPD.

12.1.3 Minor relaxation of the plot ratio and/or building height restrictions for the "R(A)" zones may be considered by the Board on application under section 16 of the Ordinance. Each application for minor relaxation of plot ratio and/or building height restrictions will be considered on its

own merits.

12.1.4 Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restrictions as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance.

12.1.5 Planning briefs setting out the planning parameters and the design requirements of individual PRH/~~HOS~~*SSF* sites will be provided to guide the future development of the sites.

12.1.6 The plot ratio control under "R(A)5" and "R(A)6" zones is regarded as being stipulated in a "new or amended statutory plan" according to the Joint Practice Note No. 4 "Development Control Parameters Plot Ratio/Gross Floor Area", and shall be subject to the streamlining arrangements stated therein.

12.2 "Residential (Group B)" ("R(B)") : Total Area 12.08 ha

12.2.1 This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board. Development within this zone is subject to a maximum plot ratio of 3.5. Podium development within these sites is discouraged. To allow design flexibility and better layout, some provisions of amenity areas have been incorporated in some PRH/~~HOS~~*SSF* sites to be developed by HD. The amenity areas will be handed over to the Government for management and should not be included in the plot ratio calculation of the PRH/~~HOS~~*SSF* development.

12.2.2 The "R(B)" site to the east of Road L3 at Planning Area 13 is intended specifically for medium-density ~~HOS~~*SSF* development with a maximum building height of 75mPD. For the two sites in Planning Area 6 and the site abutting Road L6 in Planning Area 8, they are planned for PRH/~~HOS~~*SSF* development or a mix of them to cater for the future demand for subsidised housing. To establish a more noticeable stepped height profile towards Ng Tung River, two different height bands with maximum building heights of 75mPD and 90mPD are stipulated for the sites in Planning Area 6. The "R(B)" site in Planning Area 8 is subject to a maximum building height of 90mPD.

12.2.3 Another three sites at the riverside and one site opposite to the existing residential development along Ma Sik Road are designated as "R(B)" for medium-density private residential development. These include the site abutting Road L1 in Planning Area 13 at the riverside, the site in Planning Area 18 to the north of Ma Sik Road and two sites in Planning Area 10. Developments on these sites are subject to a maximum plot ratio of 3.5 and a maximum building height of 60mPD and 75mPD. To establish a more noticeable different height bands with maximum building heights of 60mPD and 75mPD are stipulated at the site in Planning Area 18.

12.2.4 To provide flexibility for innovative design adapted to the

characteristics of particular sites, minor relaxation of the plot ratio and/or building height restrictions stated above may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

12.2.5 Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restrictions as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance.

12.2.6 Planning briefs setting out the planning parameters and the design requirements of individual PRH/~~HOS~~***SSF*** sites will be provided to guide the future development of the sites.

12.3 "Residential (Group C)" ("R(C)") : Total Area 1.24 ha

12.3.1 This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

12.3.2 A site in Planning Area 7 is under this zone and is subject to a maximum plot ratio of 2.0 and a maximum building height of 55mPD which aims to respect and integrate with the adjoining low-rise village houses in Sheung Shui Wa Shan. The Sheung Shui Wa Shan Site of Archaeological Interest falls within this site. Podium development within this site is discouraged.

12.3.3 To provide flexibility for innovative design adapted to the characteristics of the site, minor relaxation of the plot ratio and/or building height restrictions stated above may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

12.4 "Village Type Development" ("V") : Total Area 0.24 ha

12.4.1 The planning intention of this zone is to provide land considered suitable for reprovisioning of village houses affected by Government projects. It is also intended to concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructures and services. Selected commercial and community uses serving the needs of the villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Board. In order to ensure that any future development or redevelopment within the area would retain the village character, a maximum building height of three storeys (8.23m) or the height of the existing building, whichever is the greater, is imposed under this zoning.

12.4.2 A site (part of the ex-Wa Shan Public School) in Planning Area 7 is under this zoning. The site is intended to provide land for reprovisioning of affected village houses under the Village Removal

Terms due to the NDA development. The Sheung Shui Wa Shan Site of Archaeological Interest falls within this site.

12.4.3 To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the building height restriction stated above may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

12.5 "Government, Institution or Community" ("G/IC") : Total Area ~~20.37~~ ***12.34*** ha

12.5.1 This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organisations providing social services to meet community needs, and other institutional establishments. Local community facilities are also provided within the other land use zones.

~~12.5.2 Two "G/IC" sites are reserved in Planning Area 3 for relocation of the Police Driving and Traffic Training Division and Weapons Training Division from Fan Garden, Fanling, for the Hong Kong Police Force (HKPF). They are located to the north of Ng Tung River and in some distance from the major residential areas. The "G/IC" site in the south-eastern end of the area (i.e. Area 19) is designated for reprovisioning the existing North District Temporary Wholesale Market for Agricultural Products.~~

~~12.5.3~~***12.5.2*** Several sites have been reserved for government facilities in the ***western and*** central part of the NDA ~~(the Civic and Recreation Area)~~ so that these facilities can be easily accessed by the residents living in the eastern and western portions of the Area as well as the existing Fanling/Sheung Shui community. The "G/IC" site to the west of the local open space in Planning Area 11 is reserved for ~~social welfare facilities (a special child care centre and an early education and training centre) and~~ a sports/leisure centre. In view of the central location of this site, more community facilities, such as community hall serving the existing and future residents living in the Area and the Fanling/Sheung Shui community, could also be accommodated in this site. The "G/IC" site to the further west in Planning Area 11 is allocated for a government clinic to serve the existing and new communities. ***Moreover, a "G/IC" site in Planning Area 5 is reserved for a sports centre to cater for the future district demand.***

~~12.5.4~~***12.5.3*** The existing CLP substation and the existing Water Supplies Department's raw water pumping station are located in the "G/IC" site in Planning Area 1 to the north of Ng Tung River. A pumping station of the Sheung Shui Water Treatment Works is reserved in the "G/IC" site to the south of Ng Tung River in Planning Area 1. Another electric substation is reserved at Planning Area ~~5~~ ***18***.

~~12.5.5~~***12.5.4*** Five primary and three secondary schools are provided within

the Area to meet the needs of the population. Sites in close proximity to residential developments are reserved for school development to facilitate convenient access to students. Two primary schools would be provided at sites in Planning Area 9 in the western portion of the Area. Two pairs of primary and secondary schools would be provided at sites in Planning Areas 10 and 11 in the central of the Area. Another pair of a primary and a secondary school would be provided at sites in Planning Area 17 in the eastern portion of the NDA.

~~12.5.6~~***12.5.5 A "G/IC" site in the south-eastern end of the area (i.e. Area 19) is mainly designated for reprovisioning the existing North District Temporary Wholesale Market for Agricultural Products.*** There are ***also*** ~~four~~ ***three*** sites in Planning Areas ~~5,~~ 15 and 18 designated as "G/IC" for government reserve ***and reprovisioning of government facilities*** purpose***s***. These include ~~a site in Planning Area 5 which falls within the 1km Consultation Zone of the Sheung Shui Water Treatment Work,~~ a site in Planning Area 15 near the existing indigenous villages in Lung Yeuk Tau and another two sites in Planning Area 18 which are formed in connection with the road works of the Fanling Bypass.

~~12.5.7~~***12.5.6*** When detailed planning and development for the Area proceeds, local community facilities such as kindergartens and neighbourhood centres will be provided within the public housing estates and the private residential developments in accordance with HKPSG.

~~12.5.8~~***12.5.7*** Development and redevelopment in the "G/IC" zones are subject to building heights in terms of number of storey(s) (excluding basement floor(s)) or mPD as stipulated on the Plan or the height of the existing building, whichever is the greater. Minor relaxation of the building height restriction may be considered by the Board on application under section 16 of the Ordinance. Each application for minor relaxation of building height restriction will be considered on its individual merits.

~~12.5.9~~***12.5.8*** Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restrictions as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance.

12.6 "Open Space" ("O") : Total Area ~~24.89~~ ***24.67*** ha

12.6.1 This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public. A network of interconnected public open spaces of different sizes and functions would be provided including regional, district and local open spaces.

12.6.2 Regional open space is provided along the southern banks of Ng Tung River which will be developed into a continuous riverside promenade for the enjoyment of the territorial population including residents and visitors. It mainly provides an area for passive recreational uses and maximises access and enjoyment of the riverside. Riverside parks are

proposed in Planning Areas 6 and 15. They will provide an area for active and passive recreational uses and maximise access and enjoyment of the riverside. The two mitigated meanders formed after the channelisation of Ng Tung River in Planning Area 6 would be retained and should be integrated into the design of this regional open space as important landscape features. The design of this regional open space should integrate with the proposed footpath and cycle track network of the Area. The riverside promenade shall incorporate continuous tree lines along the river bank, in which amenity strips of 3m wide have been reserved, with modern and contemporary hard landscape treatments to create an attractive and favourable riverside environment.

12.6.3 District open space is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of residents as well as the general public in the district. It also serves as major pedestrian passageway and breezeway corridors. A number of district open spaces provide recreational and leisure space in the form of parks and green corridors. The Central Park in Planning Area 12 serves as a major recreational area in the Area and combines with the social services and recreational facilities in the Area 11 to serve as a civic and recreational core of the Area.

12.6.4 The major open space corridors linking up the residential areas in the Area and Fanling/Sheung Shui New Town with the riverside promenade along Ng Tung River are also district open space. The open space corridors stretching from north to south and from east to west across the core area of the District Centre in Planning Area 16, in which a terraced podium would be provided to enhance vibrancy in the street level, will form the major pedestrian shopping streets of the NDA. With the open space corridors in Planning Areas 13, 15 and 17, they will serve as the major pedestrian connector for residential sites within the core of the District Centre and linking up the major activity nodes in the Area to the public transport interchange in Planning Area 15. This cruciform open space spine shall be open to the public 24 hours a day and shall be lit sufficiently to promote a secure environment at night.

12.6.5 Local open space is provided in close proximity to residential areas to serve local residents. The open space strip to the south-west of Sheung Shui Wa Shan is for the enjoyment of the nearby villagers. Some local open spaces would serve as open space corridors linking up the residential areas with the riverside promenade. At the western end of the Area, local open space would be designed to incorporate the Grade 3 historic building of Man Ming Temple. ~~Some of the public local open spaces would be incorporated into the PRH/HOS developments to allow greater design flexibility and better layout planning.~~ Local open space will also be provided to the residents within individual public and private residential developments in the Fanling North NDA to meet the requirements of HKPSG.

12.7 "Other Specified Uses" ("OU") : Total Area ~~16.62~~ ***18.08*** ha

12.7.1 This zone is intended for specific development(s) and/or uses, which is/are specified in the annotation of the zone.

Commercial/Residential Development with Public Transport Interchange (1)

12.7.2 Located next to the eastern entrance of the cruciform open space spine, a site of 4.54 ha in Planning Area 15 is zoned "OU" annotated "Commercial/Residential Development with Public Transport Interchange (1)" with the planning intention primarily for the provision of commercial and residential uses with public transport interchange. This zone is subject to a total maximum plot ratio of 5 (of which the domestic plot ratio should not exceed 4.5) and a maximum building height of 105mPD and 125mPD. Commercial uses such as shop and services and eating places are always permitted on the lowest two floors of a building excluding basements, or in a free-standing purpose-designed non-domestic building up to five storeys. This site is intended for a high-density PRH/~~HOS~~***SSF*** development with a public transport interchange of not less than 5,000m^2 serving the community. The site will be linked up with the residential areas in the District Centre, the pedestrian shopping street and the existing communities in Luen Wo Hui and Lung Yeuk Tau by a well-connected open space network.

12.7.3 To form the visual focus of the east-west pedestrian shopping street, a landmark building with retail facilities abutting Road L1 will be developed in the southern portion of this site. To establish a more noticeable stepped building height profile towards Ma Wat River and indigenous villages in Lung Yeuk Tau, two different height bands with maximum building heights of 105mPD and 125mPD are designed on this site.

12.7.4 This site has been earmarked for PRH/~~HOS~~***SSF*** development and reserved for local rehousing for eligible clearees affected by the NDA development, whilst the remaining units after rehousing clearees will be used for general public housing purpose. Social and community facilities would also be provided within this site to support the community as this site has a higher concentration of residential population and is in close proximity to the District Centre. A planning brief setting out the planning parameters and the design requirements will be provided to guide the future development in the site.

Commercial/Residential Development with Public Transport Interchange (2)

12.7.5 A site of about 1 ha in Planning Area 10 south of Ng Tung River is designated as "OU" annotated "Commercial/Residential Development with Public Transport Interchange (2)" with the planning intention primarily for the provision of commercial and residential uses with public transport interchange. This site is intended for a medium-density private development with a public transport interchange of not less than 5,000m^2 serving the community.

Developments within this zone are subject to a total maximum plot ratio of 3.05 (of which the domestic plot ratio should not exceed 2.18) and a maximum building height of 80mPD. Commercial uses are allowed on the lowest two floors of a building excluding basements, or in a free-standing purpose-designed non-domestic building up to five storeys.

12.7.6 To add vibrancy and vitality to the area, a pedestrian shopping street with terraced podium lined with retail frontage along site boundaries abutting the open space in Planning Area 10 should be provided. Land designated as 'Terraced Podium' is subject to a maximum building height of 5m and 10m-wide set back at first floor level. This terraced design could promote pedestrian experience and enhance air ventilation at street level. 'Shop and Services' and 'Eating Place' uses should be provided along the site boundary abutting the open space spine to ensure continuous shop frontage and the provision of commercial and leisure facilities such as café, restaurants and retail shops on the side lining the open space.

Sewage Treatment Works

12.7.7 In the western end of the Area, a site of 3.6 ha in Planning Area 4 is zoned as "OU" annotated "Sewage Treatment Works" for the further expansion of Shek Wu Hui Sewage Treatment Works to cater for additional sewage flows from planned developments within the Fanling/Sheung Shui area as well as Kwu Tung North and Fanling North NDAs. The same site will also accommodate reclaimed water facilities. Developments in this site are subject to a maximum building height of 30mPD.

Sewage Pumping Stations

12.7.8 Four sewage pumping stations with a total area of ~~0.34~~ ***0.48*** ha are reserved in Planning Areas 3, 5, 7 and 11 to collect sewage flows from the Area and pump the sewage to the Shek Wu Hui Sewage Treatment Works. Developments in these sites are subject to a maximum building height of 15mPD.

~~Parking and Operation Facilities for Environmentally Friendly Transport System~~

~~12.7.9 A site of 2.2 ha in Planning Area 5 in the western portion of the Area is reserved for the possible parking and operation facilities for Environmentally Friendly Transport System (EFTS) servicing the Kwu Tung North and Fanling North NDAs. Development in this site is subject to a maximum building height of 30mPD. The proposed facilities would be subject to further study.~~

Logistics Facility

12.7.9 A site of 5.22 ha in Planning Area 3 to the west of Man Kam To Road is zoned "OU" annotated "Logistics Facility" for development of modern logistics facilities to complement the development of

Hong Kong as a Regional Distribution Centre and Logistics Hub. This site is located just next to Man Kam To Road, which could be developed more effectively for logistics facility use. Development in this site is subject to a maximum plot ratio of 7 and a maximum building height of 100mPD.

12.7.10 The plot ratio control under "OU(Logistics Facility)" zone is regarded as being stipulated in a "new or amended statutory plan" according to the Joint Practice Note No. 4 "Development Control Parameters Plot Ratio/Gross Floor Area", and shall be subject to the streamlining arrangements stated therein.

12.7.11 To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the plot ratio and/or building height restriction stated above may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

Bus Depot

12.7.12 A site of 3.27 ha in Planning Area 3 to the east of Man Kam To Road is reserved for development of multi-storey bus depots. Suitable provision has been incorporated in the Notes for the provision of public heavy goods vehicle parks on site as required by the Transport Department. Development in this site is subject to a maximum building height of 60mPD.

12.7.13 To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the building height restriction stated above may be considered by the Board through the planning permission system. Each proposal will be considered on its individual planning merits.

Amenity Area

~~12.7.10~~*12.7.14* "OU" annotated "Amenity Area" zones are indicated on the Plan. Amenity areas with a total area of about ~~4.96~~*5.04* ha are provided along the major road links to enhance the environment and to serve as visual buffers. The amenity areas in the southern edge of Planning Areas 14, 17 and 18 abutting Ma Sik Road will provide an essential landscaped link to complete the green network formed mainly by the green space corridors. Some of the amenity areas would be incorporated into the developments by HD to allow greater design flexibility and better layout planning.

~~12.7.11~~*12.7.15* To provide flexibility for innovative design adapted to the characteristics of particular sites, minor relaxation of the plot ratio and/or building height restrictions stated above may be considered by the Board on application under section 16 of the Ordinance. Each application will be considered on its individual merits.

~~12.7.12~~*12.7.16* Under exceptional circumstances, for developments and/or redevelopments on the "OU" annotated "Commercial/Residential

Development with Public Transport Interchange (1)" in Planning Area 15, minor relaxation of the NBA restrictions as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance.

12.8 "Agriculture" ("AGR") : Total Area 12.50 ha

12.8.1 This zone is intended primarily to retain and safeguard good quality agricultural land/farm/fish ponds for agricultural purposes. It is also intended to retain fallow arable land with good potential for rehabilitation for cultivation and other agricultural purposes.

12.8.2 About 12.5 ha of the land in the north-western part of the Area remain as "AGR" zone as previously designated on the Fu Tei Au and Sha Ling OZP to allow the continuation of the existing farming practices. Since the concerned area falls within the Environmental Protection Department's Livestock Waste Control Area (i.e. Part of River Indus Area) with effect from 1 January 1989, livestock premises located in the statutory Control Area must comply with the requirements of the Waste Disposal (Livestock Waste) Regulations. Measures should be taken to prevent any environmental nuisance to the public and any pollution to watercourses and Water Gathering Grounds within the meaning of the Waterworks Ordinance. Adequate provision for the temporary storage of livestock waste in properly-designed and constructed containers should be made.

12.8.3 Except as otherwise provided in the Notes of this Plan, filling of land/pond may cause adverse drainage and environmental impacts on the areas, permission from the Board is required for such activities. However, filling of land specifically required under prior written instructions of Government department(s) or for the purposes of genuine agricultural practice including laying of soil not exceeding 1.2m in thickness for cultivation, and construction of agricultural structure with prior written approval from the Lands Department is exempted from the control.

12.9 "Green Belt" ("GB") : Total Area 2.44 ha

12.9.1 The planning intention of this zone is primarily for defining the limits of urban and sub-urban development areas by natural features, to protect the natural landscape and environment, as well as to provide an ecological buffer for adjacent meander. There is a general presumption against development within this zone.

12.9.2 Areas with mature vegetation have been designated as "GB" to protect existing green areas in the Area. The ecological buffers for the mitigation meanders at Sheung Shui Wa Shan and Siu Hang San Tsuen Stream are designated as "GB" which are of landscape and ecological value. Natural vegetation will be retained and enhanced and human activities will be limited in order to avoid direct impacts.

12.9.3 As filling of land/pond and excavation of land may cause adverse drainage impacts on the areas and adverse impacts on the natural

environment, permission from the Board is required for such activities.

12.10 "Conservation Area" ("CA") : Total Area 2.22 ha

12.10.1 This zoning is intended to protect and retain the existing natural landscape, ecological, or topographical features of the area for conservation, educational and research purposes, and to separate sensitive natural environment from the adverse effects of development. There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.

12.10.2 The mitigation meanders in Planning Areas 2 and 7 are designated as "CA". They were formed as a result of the channelisation of Ng Tung River and are reserved for retaining the uncommon fish species Rose Bitterling and for the provision of a habitat suitable for relocation of the Man Kam To Road egretry which would be directly impacted by the construction of Fanling Bypass Western Section (between Luen Wo Hui and Man Kam To Road). The ecology of these areas will be enhanced and protected.

12.10.3 Filling of land/pond or excavation of land may cause adverse drainage impacts on the areas and adverse impacts on the natural environment. In view of the conservation value of the area, permission from the Board is required for such activities.

13. COMMUNICATIONS

To support the development of Fanling North NDA, a number of improvements to the existing road network are necessary. The traffic impacts of the planned developments have been assessed. With the implementation of the proposed improvement works, no adverse traffic impact is envisaged.

13.1 Road Network (**Figure ~~7~~*6*)

13.1.1 The Area will be connected with different parts of Hong Kong and surrounding areas by a comprehensive existing and planned road network. The major road networks within the Area include primary distributors, district distributors and local distributors.

13.1.2 There are two primary distributors serving the Area. In the eastern portion of the Area, Fanling Bypass Eastern Section (between Wo Hop Shek and Luen Wo Hui), with a dual 2-lane configuration, will serve as a primary distributor to link the area to the Fanling Highway-Tai Po direction. For the western portion of the Area, the traffic will make use of the existing Jockey Club Road and Po Shek Wu Road to connect with the Fanling Highway.

13.1.3 Regarding district distributors, the Fanling Bypass Western Section

(between Luen Wo Hui and Man Kam To Road), with a single 2-lane configuration, will provide a linkage between the Man Kam To Road and the Fanling Bypass Eastern Section.

13.1.4 Most of the local distributor roads are designed for single 2-lane configuration to provide access to the proposed new developments and existing villages. In particular, a local distributor road is proposed to connect to the existing Ma Sik Road to provide a good connectivity between the existing and the new communities in the eastern part of the NDA. There is another east-west local distributor road running to the south of the Fanling North NDA and parallel to the Fanling Bypass to serve the western part of Area.

13.1.5 Interchange/junctions and bridge structures are proposed across the Ng Tung River, linking some of the existing villages to the north of Ng Tung River where appropriate.

13.1.6 Amenity strips are provided alongside roads to enhance the amenity and to serve as visual buffers. They also offer good opportunities for landscaping and tree planting. Some amenity strips are incorporated into the area shown as 'Road' on the Plan.

13.2 Public Transport

13.2.1 Two new public transport interchanges of not less than 5,000m^2 each will be provided in the eastern (Area 15) and western (Area 10) parts of the Fanling North NDA to provide ***franchised*** bus/Green Minibus services ***or other public transport facilities***. ~~Taxi stands are also provided in the public transport interchanges.~~

~~13.2.2 In the planning of NDA, flexibility has been provided for road based environmentally friendly transport modes such as electric bus (subject to the outcome of the trial to test the use of electric buses under Hong Kong's operating condition) providing feeder services from the Area to the Fanling and Sheung Shui railway stations. The provision of such transport modes would be considered in detail. A site in Planning Area 5 has been reserved for the possible parking and operation facilities for EFTS servicing the Kwu Tung North and Fanling North NDAs.~~

~~13.2.3~~***13.2.2*** Design flexibility should be allowed for possible new rail infrastructure which is currently under review.

13.3 Pedestrian and Cycling Track Connections (**Figures ~~5 and 6~~ *4 and 5***)

13.3.1 The footpaths and cycle tracks would be provided to link up major activity nodes in the Area, including the public transport interchanges, residential and commercial areas, open spaces and recreational facilities. A cycle track would be provided along the southern bank of Ng Tung River to provide a leisure cycling environment. To the east and west, it will link with the cycle track networks ~~proposed~~ under the 'Cycle Track Networks in the Northwest and Northeast New Territories' and the planned cycle track network in the Kwu Tung

North NDA ***with proposed footbridges across Ng Tung River and Sheung Yue River***.

13.3.2 Convenient cycle parking facilities will be provided near major destinations including proposed public transport interchanges, major residential areas and open spaces.

13.3.3 At the south, the pedestrian network ***with proposed footbridges across Ma Sik Road and Road L1*** will connect with the existing developments in Luen Wo Hui to allow integration of the Fanling North NDA with the existing new town area. At the north, footbridges across Ng Tung River to the existing villages will be re-provided/maintained. Riverside promenades are provided along the southern banks of Ng Tung River for the territorial population to enjoy the riverside environment, linking up the western and eastern portions of the Fanling North NDA, and the adjoining neighbourhood.

14. UTILITY SERVICES

14.1 Drainage

14.1.1 A new drainage system in the form of a gravity piped drainage system will be provided to convey storm water runoff to Ng Tung River following the catchment delineation. Local drainage improvements within the Area in the form of raising existing site levels and new drainage systems would be provided to eliminate the existing flood prone areas within the Area.

14.1.2 Peripheral channels are recommended to be provided along the toe of the embankment for site formation on the south-west side of the NDA to avoid adverse impact to the existing Tin Ping Shan Tsuen and Fung Kai Secondary School.

14.2 Sewage and Sewage Treatment

Sewage flows from the Area will be conveyed through a trunk sewer along the roads within the Area and then pumped to the Shek Wu Hui Sewage Treatment Works, through pumping stations at sites in Planning Areas 3, 5, 7 and 11. The existing Shek Wu Hui Sewage Treatment Works would be upgraded with an expansion in Planning Area 4.

14.3 Water Supply

Existing fresh ~~W~~***w***ater supply to Fanling and Sheung Shui area is being conveyed from Sheung Shui Water Treatment Works via ***the*** Table Hill Fresh Water Service Reservoir (FWSR) and ~~Tong Hang FWSR and~~ the ***associated*** distribution mains. As ***the*** Table Hill FWSR does not have any spare capacity for the NDA development, a new FWSR will be constructed near the existing Table Hill FWSR ***with fresh water supply from Tai Po Water Treatment Works***. Also, a new flushing water service reservoir is planned near the existing ~~Tong Hang~~ ***Table Hill*** FWSR. It is recommended to re-use treated sewage effluent from Shek Wu Hui Sewage Treatment Works for

non-potable purposes which is subject to further study.

14.4 Electricity

A new 132kV primary substation would be provided in Planning Area ~~5~~ ***18***. For power infeed of this station, new 132kV underground cables would be provided to be connected to the 132kV cables to Liantang/Heung Yuen Wai Boundary Control Point (LT/HYW BCP) substation. Connection is made by turn in and out the new power cables for LT/HYW BCP. Another set of 132kV underground cable would be provided from the existing Fanling bulk infeed substation.

14.5 Gas

The existing gas supply for Kwu Tung, Fanling and Sheung Shui is provided by the Hong Kong and China Gas Company Limited from the two existing offtake stations, namely Fanling West Offtake Station and Fanling East Offtake Station. Gas is supplied from the Tai Po Gas Production Plant to the two offtake stations through high pressure gas pipes and then medium pressure (MP) gas pipes outfeed from the offtake stations. New MP gas pipes can be connected either to the existing MP gas pipes in Ma Sik Road or those in Jockey Club Road.

14.6 Telecommunications

Telecommunications cables will be branched off from Ma Sik Road, Lung Sum Avenue and Jockey Club Road, laid along the local distributor roads and distributed to the development sites.

15. CULTURAL HERITAGE

15.1 The Man Ming Temple (Grade 3), Sheung Shui Wa Shan Site of Archaeological Interest and areas with high or medium archaeological potential in the Area are worthy of preservation. Opportunity would be taken to incorporate the Man Ming Temple (Grade 3) in implementing the open space in Planning Area 2. The Antiquities and Monuments Office (AMO) of the ~~Leisure and Cultural Services Department (LCSD)~~ ***Development Bureau (DEVB)*** should be consulted on any development or redevelopment proposals which might affect these buildings/structures and archaeological potential areas or jeopardise the integrity of these buildings/structures and archaeological potential areas and their immediate environs.

15.2 The Antiquities Advisory Board (AAB) also released a list of new items in addition to the list of 1,444 historic buildings. These items are subject to grading assessment by the AAB. Details of the list of 1,444 historic buildings and the new items have been uploaded onto the official website of the AAB at http://www.aab.gov.hk.

15.3 Prior consultation with the AMO of the ~~LCSD~~ ***DEVB*** should be made if any development, redevelopment or rezoning proposals might affect the above graded historic building/structure, new items pending grading assessment, site of archaeological interest or areas with high or medium archaeological

potential and their/its immediate environs.

16. PLANNING CONTROL

16.1 The types of permitted developments and uses within the Area are listed in the Notes to the Plan. Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted developments and uses within the same zone are always permitted and no separate permission is required.

16.2 For any land or building falling within the boundaries of this Plan and also previously falling within the boundaries of the 'IDPA area' or the 'DPA area', whichever the case may be –

(a) uses of land or building as defined under paragraphs (3)(a) and (3)(b) of the covering Notes and which are not in compliance with the terms of the Plan may have adverse impact on the environment, drainage and traffic of the area. Although no action is required to make such use conform to this Plan, any material change of such use or any other development (except minor alteration and/or modification to the development of the land or building in respect of such use which is always permitted) must be always permitted in terms of the Plan or, if permission is required, in accordance with a permission granted by the Board. The Board will consider these applications on their individual merits. Those alteration and/or modification works which may lead to an environmental improvement or upgrading to the Area may be considered favourably by the Board;

(b) any development, other than those referred to the above paragraph or in conformity with this Plan or with the permission of the Board, undertaken or continued on or after 7 September 1990 on land included in a plan of the previous Fu Tei Au and Sha Ling IDPA, or on or after 5 March 1999 on land included in a plan of the Hung Lung Hang DPA, may be subject to enforcement proceedings under the Ordinance. Any filling of land/pond and excavation of land in the relevant zones on or after the exhibition of the specific plan referred to in the Notes of the relevant zones without the permission from the Board may also be subject to enforcement proceedings.

16.3 For any land or building falling within the boundaries of this Plan but not previously falling within the 'IDPA area' or the 'DPA area', no action is required to make the existing use of such land or building conform to this Plan, until there is a material change of use or the building is redeveloped. Any material change of such use or any other development (except minor alteration and/or modification to the development of the land or building in respect of such use which is always permitted) must be always permitted in terms of the Plan or, if permission is required, in accordance with a permission granted by the Board. The Board has published a set of guidelines for the interpretation of existing use in the urban and new town areas. Any person who intends to claim an 'existing use right' should refer to the guidelines and will need to provide sufficient evidence to support his claim. The enforcement of the zoning control mainly rests with the Buildings Department, the Lands

Department and the various licensing authorities.

16.4 Planning applications to the Board will be assessed on individual merits. In general, the Board, in considering the planning applications, will take into account all relevant planning considerations which may include the departmental outline development plans and layout plans, and guidelines published by the Board. The outline development plans and layout plans are available for public inspection at the Planning Department. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of the Planning Department. Application forms and Guidance Notes for planning application can be downloaded from the Board's website and are available from the Secretariat of the Board; and the Technical Services Division and relevant District Planning Offices of the Planning Department. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

17. IMPLEMENTATION

17.1 To achieve early delivery of land to meet the housing needs and ensure timely provision of a comprehensive range of commercial, retail, open space and G/IC facilities in tandem with the population build-up, an implementation programme with proper phasing and packaging of works for the NDA development has been formulated. ~~Detailed design for site formation and engineering infrastructural works for part of the housing development and supporting facilities included in the Advance Works Package has commenced in 2014, to enable construction to start in 2018 and first population intake in 2023.~~ ***Construction stage works for the First Phase development and detailed design stage works for the Remaining Phase development commenced in 2019 with target for full completion of site formation and infrastructural works of the NDA in 2031.*** ~~Allowing modification of lease (including in-situ land exchange) may help advance the first population intake to 2022. Other major works will start after the commencement of the advance works and the development of the Fanling North NDA is expected to be fully completed by 2031~~.

17.2 The Government will resume and clear the private land planned for public works projects, public and private developments, carry out site formation works, and provide infrastructure before allocating land for various purposes, including disposal of land planned for private developments in the market. Land formation and the provision of infrastructure will be implemented in accordance with the development programme prepared by the Civil Engineering and Development Department. Open space, schools, social welfare and other community facilities will be constructed by the appropriate Government departments on the basis of the Capital Works Programme, School Building Programme and other Public Works Programme. PRH and HOS housing together with the supporting facilities will be built by HD in accordance with the Public Housing Development Programme and other relevant agents. Flexibility will be provided for modification of lease including in-situ land exchange applications meeting a set of criteria by specified deadlines having regard to the phased development of the NDAs.

17.3 The OZP provides a broad land use framework within which a more detailed departmental Outline Development Plan (ODP) has been prepared in consultation with Government departments concerned. The ODP is a non-statutory plan which will be used as the basis for public works planning and site reservation purpose. It includes information on detailed land uses, development parameters and boundaries of individual sites, green coverage, waterworks and drainage reserves, site formation levels, road alignment and dimensions, location of pedestrian facilities, public utility facilities as well as other building and engineering requirements. These should generally be followed in land transactions and allocations. In particular, the OZP together with the ODP, where appropriate, will serve as the basis for processing the lease modification applications (including in-situ land exchange) subject to specified criteria promulgated by the Government.

Index of Figures (All figures are for indicative purpose only)

Figure 1 – ***Previous OZPs covering*** Fanling North Outline Zoning Plan ***Area*** ~~No. S/FLN/1~~
~~Figure 2 – Planning Scheme Area of the Fanling North Outline Zoning Plan~~
Figure ~~3~~*2* – Planning Areas
Figure ~~4~~*3* – Urban Design and Landscape Framework
Figure ~~5~~*4* – Pedestrian Connections
Figure ~~6~~*5* – Cycle Track Network
Figure ~~7~~*6* – Transport Network

TOWN PLANNING BOARD
~~JUNE 2015~~ ***XXX 2022***

虎地坳及沙嶺分區計劃大綱圖
FU TEI AU AND SHA LING OZP

恐龍坑分區計劃大綱圖
HUNG LUNG HANG OZP

該區先前屬於一九九零年九月七日公開展示的
虎地坳及沙嶺中期發展審批地區圖編號IDPA/NE-FTA/1的範圍
THIS AREA WAS PREVIOUSLY COVERED BY THE INTERIM DEVELOPMENT PERMISSION AREA PLAN FOR FU TEI AU AND SHA LING No. IDPA/NE-FTA/1 EXHIBITED ON 7.9.1990

該區先前屬於一九八七年十月二十三日公開展示的
粉嶺/上水分區計劃大綱圖編號S/FSS/1的範圍
THIS AREA WAS PREVIOUSLY COVERED BY THE OUTLINE ZONING PLAN FOR FANLING/SHEUNG SHUI No. S/FSS/1 EXHIBITED ON 23.10.1987

粉嶺/上水分區計劃大綱圖
FANLING / SHEUNG SHUI OZP

該區先前屬於一九九九年三月五日公開展示的
恐龍坑發展審批地區圖編號DPA/NE-HLH/1的範圍
THIS AREA WAS PREVIOUSLY COVERED BY THE DEVELOPMENT PERMISSION AREA PLAN FOR HUNG LUNG HANG No. DPA/NE-HLH/1 EXHIBITED ON 5.3.1999

小蠔灣分區計劃大綱圖內
NOT INCLUDED IN THE OUTLINE ZONING PLAN

圖 例 LEGEND

- 粉嶺北分區計劃大綱圖的界線
  BOUNDARY OF THE FANLING NORTH OZP
- 沒有被法定圖則覆蓋的以前河道
  RIVER CHANNEL NOT PREVIOUSLY COVERED BY STATUTORY PLAN

本摘要圖於2022年9月19日擬備，所根據的資料為
於2017年12月5日核准的分區計劃大綱圖編號S/NE-FTA/16、
於2017年12月5日核准的分區計劃大綱圖編號S/NE-HLH/11、
於2015年6月16日核准的分區計劃大綱圖編號S/FLN/2及
於2021年12月17日展示的分區計劃大綱圖編號S/FSS/25
EXTRACT PLAN PREPARED ON 19.9.2022
BASED ON OUTLINE ZONING PLANS No.
S/NE-FTA/16 APPROVED ON 5.12.2017,
S/NE-HLH/11 APPROVED ON 5.12.2017,
S/FLN/2 APPROVED ON 16.6.2015 AND
S/FSS/25 EXHIBITED ON 17.12.2021

粉嶺北分區計劃大綱圖先前的法定圖則範圍
PREVIOUS STATUTORY PLANS COVERING FANLING NORTH OUTLINE ZONING PLAN AREA

SCALE 1 : 15 000 比例尺

米 METRES 200 0 200 400 600 800 1000 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖 解 FIGURE
1

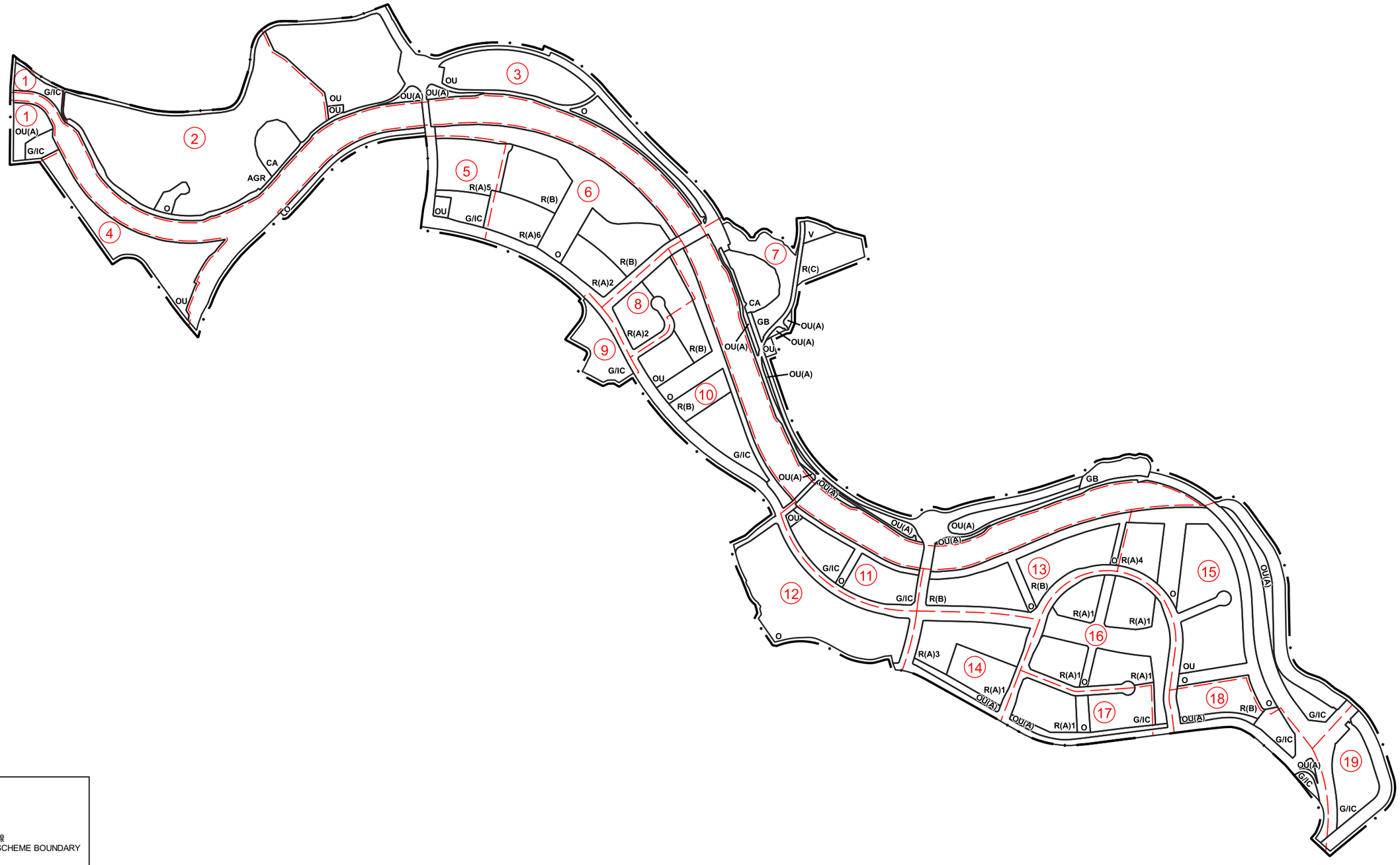


圖 例 LEGEND

- 地帶 ZONES
- 規劃範圍界線 PLANNING SCHEME BOUNDARY
- 規劃區界線 PLANNING AREA BOUNDARY
- (18) 規劃區編號 PLANNING AREA NUMBER

本摘要圖於2022年9月19日擬備
EXTRACT PLAN PREPARED ON 19.9.2022

粉嶺北分區計劃大綱圖 FANLING NORTH OUTLINE ZONING PLAN

規劃區
PLANNING AREAS

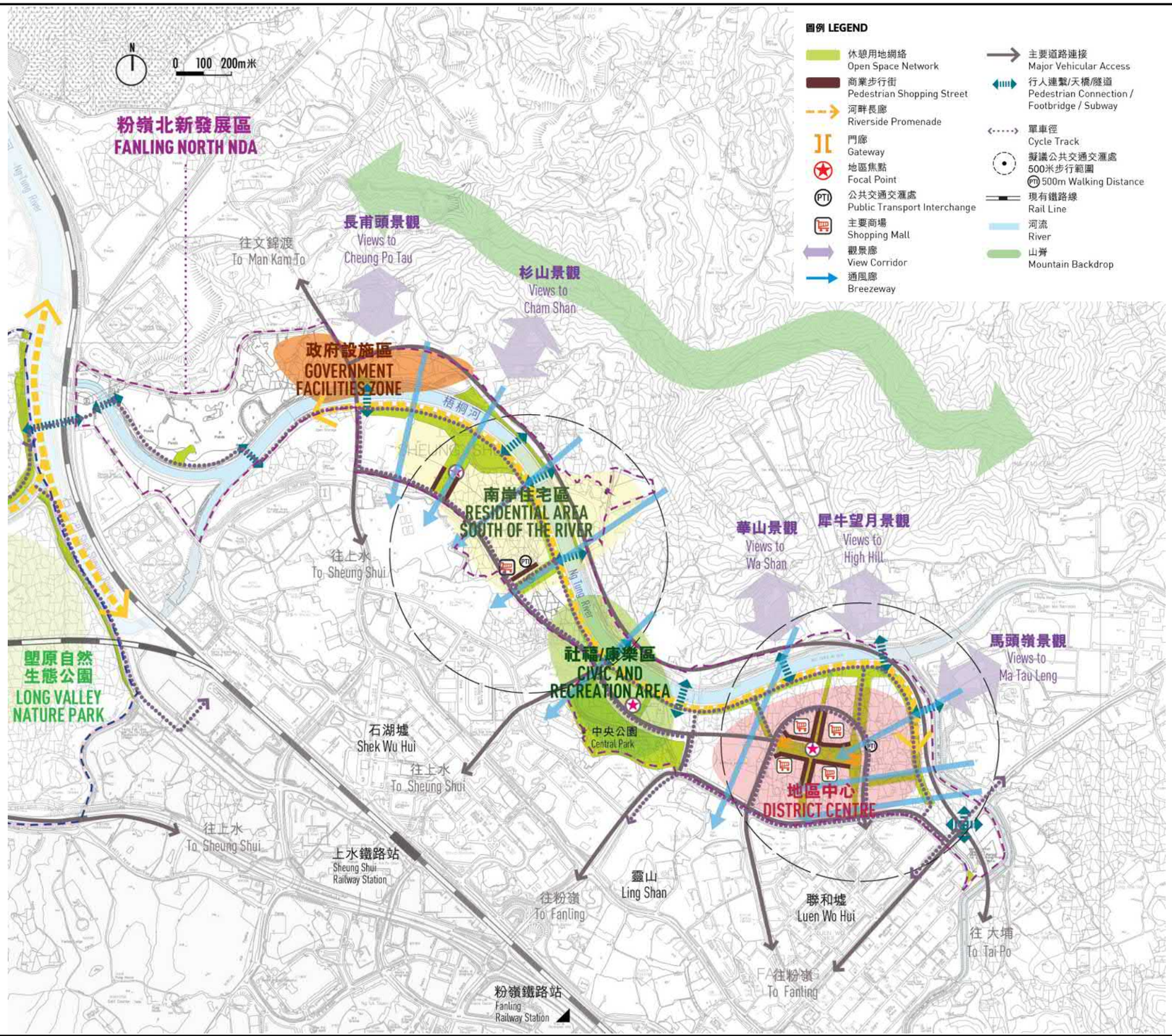
SCALE 1 : 10 000 比例尺

米 METRES 100 0 100 200 300 400 500 600 700 800 900 1000 米 METRES

規 劃 署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖 解 FIGURE
2



只作顯示用途
FOR INDICATIVE PURPOSE ONLY

本摘要圖於2022年9月19日擬備
EXTRACT PLAN PREPARED ON 19.9.2022

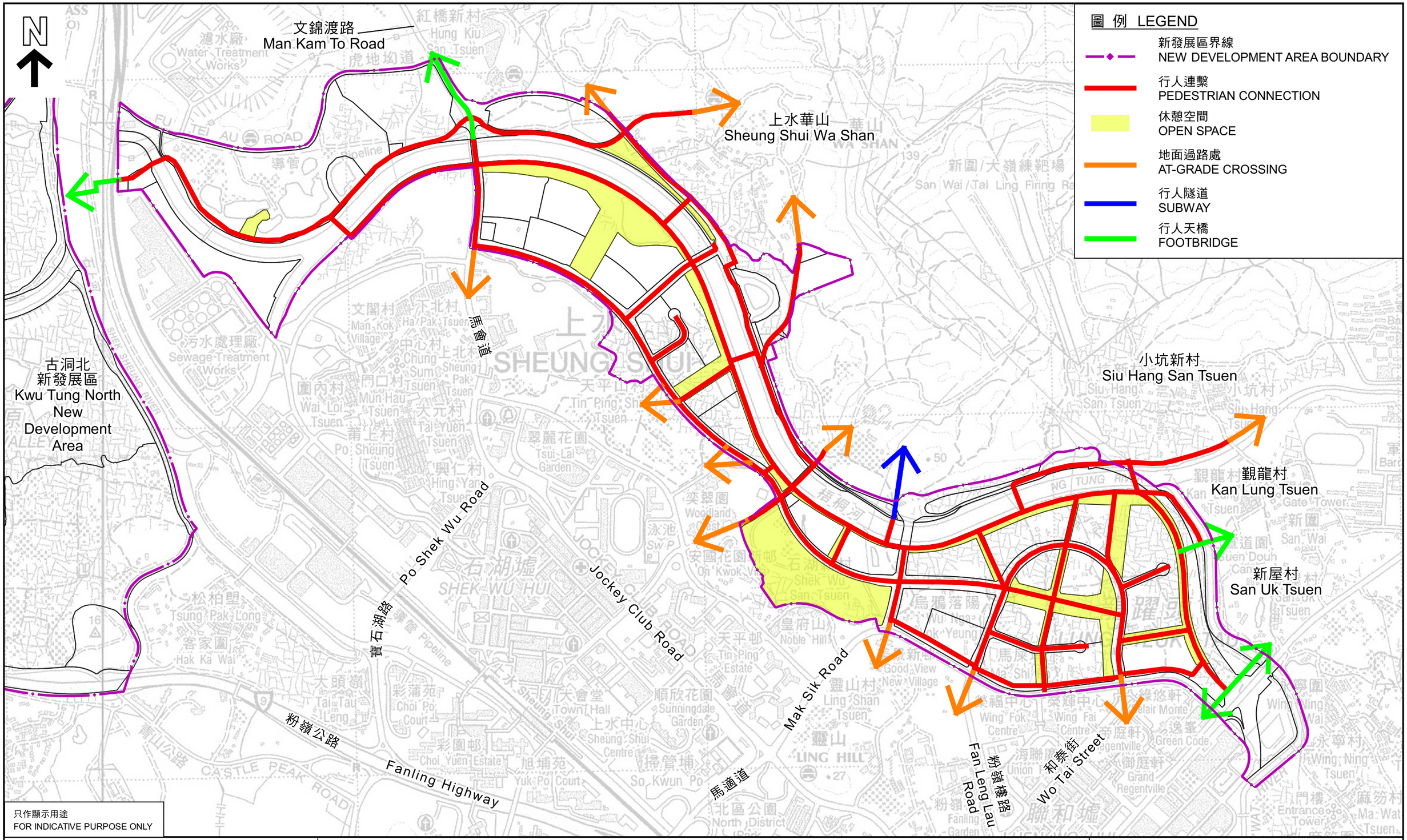
粉嶺北新發展區 FANLING NORTH NEW DEVELOPMENT AREA

城市設計及景觀大綱
URBAN DESIGN AND LANDSCAPE FRAMEWORK
摘自2013年完成的新界東北新發展區規劃及工程研究
Extracted from North East New Territories New Development Areas Planning and Engineering Study completed in 2013

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖解 FIGURE
3



粉嶺北新發展區 FANLING NORTH NEW DEVELOPMENT AREA

行人連繫
PEDESTRIAN CONNECTIONS

(有待詳細設計)
(Subject to Detailed Design)

本摘要圖於2022年9月19日擬備
EXTRACT PLAN PREPARED ON 19.9.2022

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖解 FIGURE
4

N

古洞北
新發展區
Kwu Tung North
New
Development
Area

圖 例 LEGEND

- 新發展區界線
  NEW DEVELOPMENT AREA BOUNDARY
- 現有單車徑
  EXISTING CYCLE TRACK
- 在粉嶺北發展區的擬議單車徑
  PROPOSED CYCLE TRACK IN FLN NDA
- 其他已計劃的單車徑
  OTHER PLANNED CYCLE TRACK
- 擬議單車泊車處
  PROPOSED CYCLE PARKING AREA
- 休憩空間
  OPEN SPACE

只作顯示用途
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本摘要圖於2022年9月19日擬備
EXTRACT PLAN PREPARED ON 19.9.2022

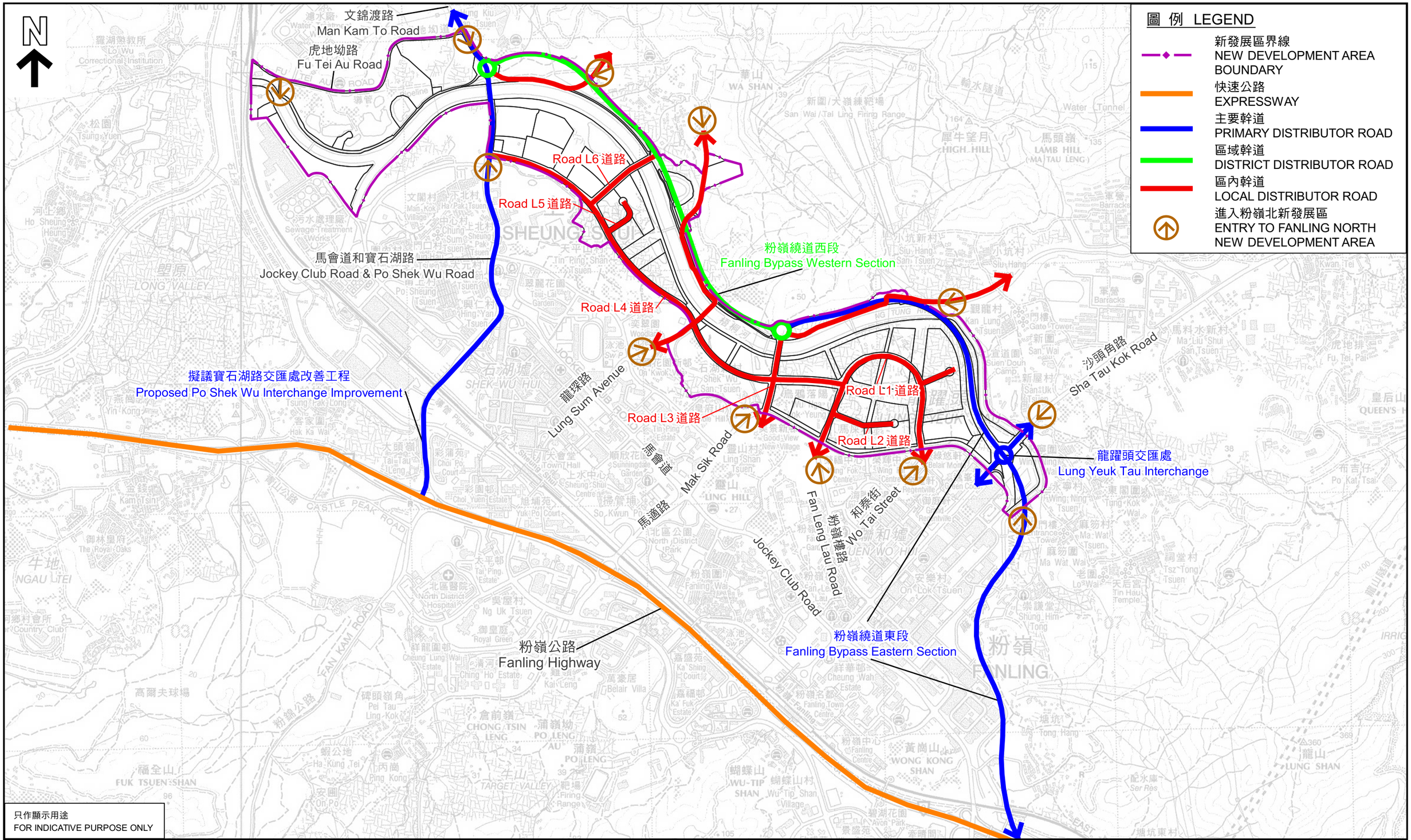
粉嶺北新發展區 FANLING NORTH NEW DEVELOPMENT AREA

單車徑網絡
CYCLE TRACK NETWORK
（有待詳細設計）
(Subject to Detailed Design)

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖 解 FIGURE
5



本摘要圖於2022年9月19日擬備

EXTRACT PLAN PREPARED ON 19.9.2022

粉嶺北新發展區 FANLING NORTH NEW DEVELOPMENT AREA

交通網絡
TRANSPORT NETWORK
（有待詳細設計）
(Subject to Detailed Design)

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/FS/22/32

圖解 FIGURE
6

Proposed Amendments Incorporated to the draft FLN OZP No. S/FLN/2A

Item A Rezoning of a site (about 5.22 ha) at Area 3 to the west of Man Kam To Road from "G/IC" and "road' area to "OU(Logistics Facility)" with a maximum plot ratio of 7 and a maximum building height of 100mPD for development of logistics facility

Item B Rezoning of a site (about 3.27 ha) at Area 3 to the east of Man Kam To Road from "G/IC" to "OU(Bus Depot)" with a maximum building height of 60mPD for development of bus depots and public goods vehicle parks

Item C1 Rezoning of a site (about 2.15 ha) at Area 5 to the south of Ng Tung River from "OU(POFEFTS)", "G/IC" and 'Road' area to "R(A)5" with a maximum plot ratio of 4.85 and a maximum building height ranging from 95mPD (northern portion) to 110mPD (southern portion) for public housing development

Item C2 Rezoning of a site (about 0.14 ha) at the southwest corner of Area 5 from "OU(POFEFTS)" to "OU(Sewage Pumping Station)" with a maximum building height of 15mPD as an in-situ expansion

Item C3 Rezoning of a site (about 0.76 ha) at the southern portion of Area 5 and to the north of planned Road L4 from "OU(POFEFTS)" to "G/IC" with a maximum building height of 8 storeys for government/community facilities

Item C4 Rezoning of the residual land of Road L7 (about 0.03ha) at Area 5 from 'Road' area to "O"

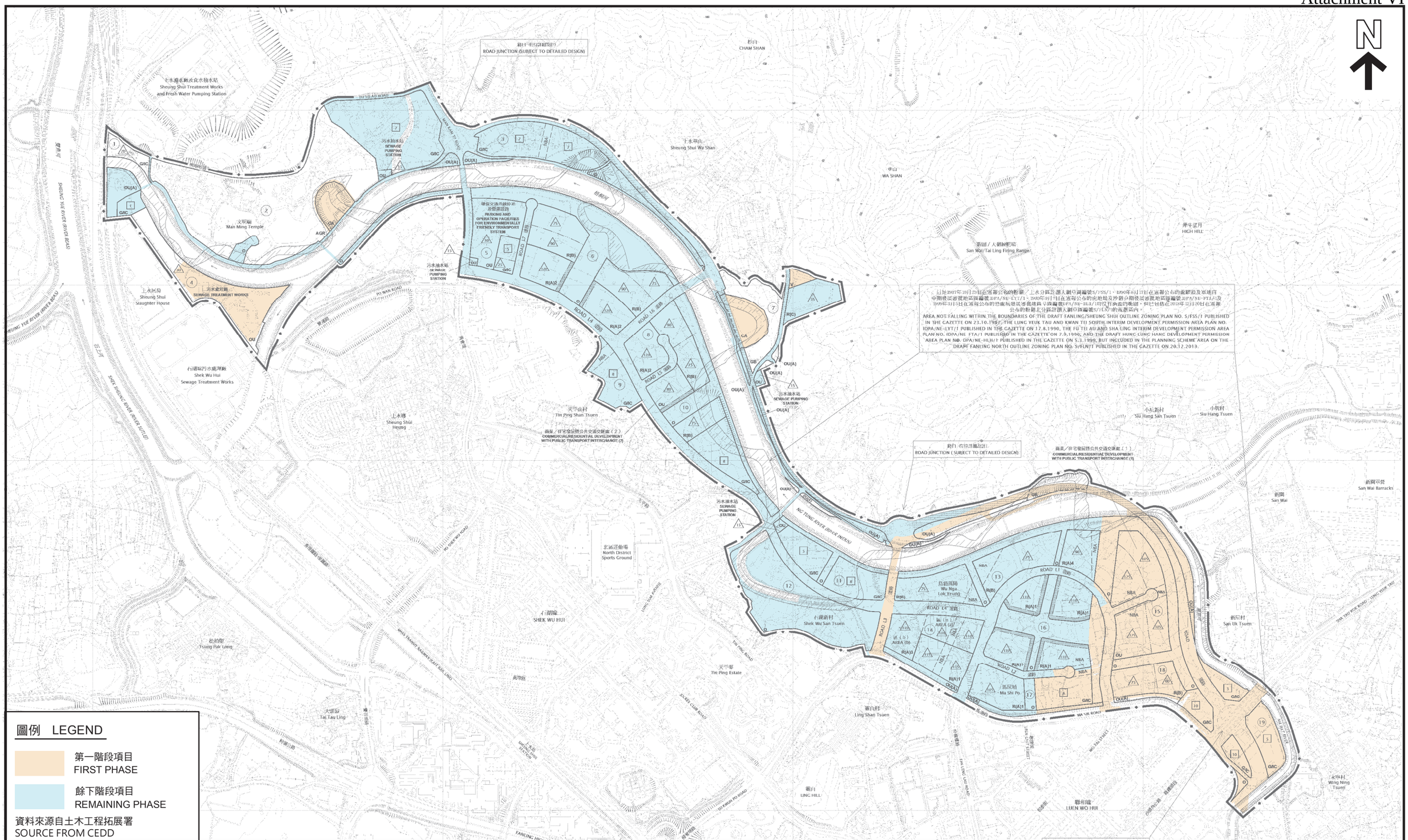
Item C5 Rezoning of a site (about 1.5 ha) at the southwest corner of Area 6 from "R(A)2" and 'Road' area to "R(A)6" with a maximum plot ratio of 6.5 and a maximum building height of 145mPD for public housing development

Item D Revision of the building height restriction of a "G/IC" site (about 1.21 ha) at Area 11 from 5 storeys to 8 storeys for government/community facilities

Item E1 Rezoning of a piece of land from "G/IC" and 'Road' area to "OU(Amenity Area)" (about 0.08ha) to reflect the revised alignment of Fanling Bypass (Eastern Section)

Item E2 Rezoning of a piece of land from "O" and 'Road' area to "G/IC" (about 0.11ha) to reflect the revised alignment of Fanling Bypass (Eastern Section)

Item E3 Rezoning of a piece of land from 'Road' area to "G/IC" (about 0.64ha) to reflect the revised alignment of Fanling Bypass (Eastern Section)


N
ROAD JUNCTION (SUBJECT TO DETAILED DESIGN)
杉山
CHAM SHAN
上水禾坑廢水及食水抽水站
Sheung Shui Treatment Works and Fresh Water Pumping Station
上水禾坑
Sheung Shui Wa Shan
華山
WA SHAN
HIGH HILL
MAN KAM TO ROAD
SHEUNG YUE RIVER (RIVER BED)
SHEUNG YUE RIVER (RIVER BANK)
SHEK SHEUNG RIVER (RIVER SIDE)
污水抽水站
SEWAGE PUMPING STATION
文明廟
Man Ming Temple
上水屠房
Sheung Shui Slaughter House
污水處理廠
SEWAGE TREATMENT WORKS
石湖墟污水處理廠
Shek Wu Hui Sewage Treatment Works
PO WAN ROAD
ROAD L2 路
ROAD L3 路
ROAD L4 路
ROAD L5 路
ROAD L6 路
ROAD L7 路
ROAD L8 路
ROAD L9 路
ROAD L10 路
ROAD L11 路
ROAD L12 路
ROAD L13 路
ROAD L14 路
ROAD

APPENDIX 1

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

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Appendix D — Habitats and Land Use in FLN NDA And Approved EIA
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1. INTRODUCTION

1.1 Background

1.1.1 In December 2019, a Land Use Review for three sites in Kwu Tung North (KTN) New Development Area (NDA) and three sites in Fanling North (FLN) NDA (LUR 1.0 (Six Sites) was commenced to review the alternative land uses and development potential. During the LUR 1.0 (Six Sites), it has been found technically feasible to accommodate an additional of about 9,000 housing flats in KTN and FLN NDA. Given the LUR 1.0 (Six Sites) are located at the fringe of the NDAs, it was then proposed to examine the feasibility of re-allocating these additional housing units to the planned public and/or private housing sites in the NDA Remaining Phase by increasing the development intensity of individual sites (i.e. new Planning and Engineering Review (P&E Review (FLN) 2021). A second Land Use Review for three sites in FLN NDA (i.e. Sites 4, 5 and 6) (LUR 2.0 (FLN Sites 4-6)) is also conducted to suitably accommodate essential economic uses / GIC facilities or to accommodate additional population.

1.1.2 A Planning and Engineering Review comprises to review the technical / environmental feasibility of optimising the development intensity of the planned housing sites under the Remaining Phase of FLN NDA, and to assess the optimum distribution of the additional units / population identified among the sites under P&E Review (FLN) 2021. The P&E Review (FLN) 2021 examined the impact of additional units on the public / private housing mix of the FLN NDA.

1.1.3 Due to the proposed land use in the 3 sites in FLN NDA, changes in building layout and building height (BH) restriction will be required to accommodate the increase in Housing Development and Other Specified Uses. The previous findings of the Visual assessment related to Baseline Condition from the approved EIA report will be reviewed based on the Worst-Case Scenario Option for FLN Sites 4, 5, and 6.

1.2 Purpose of Landscape and Visual impact Assessment

1.2.1 The purpose of this landscape and visual impact assessment is to review and ascertain any changes subsequent to the significance of Landscape and Visual Impact from the approved EIA Report conducted under the NENT NDAs Study under the review on the land use or development intensity of 3 sites and inclusion of BH intensification planning within the FLN NDA that were not covered in the previous studies. Sufficient information is aimed to be presented in a structured manner to facilitate the Town Planning Board (TPB) to visualize the three-dimensional relationship of the Proposed Development with the surrounding context and to consider the visual effects in accordance with Town Planning Board Guidelines on Submission of Visual Impact Assessment for Planning Applications to the Town Planning Board (TPB PG-No.41).

2. METHODOLOGY OF THE VISUAL IMPACT ASSESSMENT

2.1.1 The visual impacts of the Proposed Development are assessed. The assessment adopts a systematic methodology and includes the following:

- Identification and plotting of visual envelope of the Proposed Development within the Assessment Area. Known and planned developments will be taken into account. Visual Envelope may contain areas which are fully visible, partly visible and non-visible from the proposed development. Identification of the Visual Envelope is achieved by desktop study of topographic maps, street maps, cross sectional drawings, photographs and site visit to determine visibility of the Project from various locations. The assessment area should be up to the visual envelope which is generally the view shed formed by natural/man-made features, such as building blocks.
- Identification of the viewpoints (VPs) of key groups of sensitive receivers within the visual envelope and their views at both ground level and elevated vantage points. They are considered persons whose views from residences, workplaces, and public areas within the Visual Envelope will be affected by the project during construction and/or operation phases.
- Appraisal of visual changes on the assessment area and description of the visual compatibility of the Development with the surrounding and the planned setting, and its obstruction and interference with the key visual elements, including visual resources and key views of the adjacent areas.
- Evaluation of the overall visual impact of the Proposed Development, including the description of the significance of visual impacts with respect to the sensitivity of receivers and the magnitude of changes, any resultant effect in the visual quality and character of the surrounding area. Any design features or mitigation measures that help moderate the visual impact of the development shall be discussed.
- The overall visual impact of the proposed development is evaluated, taking into account the sensitivity of the key public viewers, visual resources and visual amenities likely to be affected, the magnitude, extent and duration of impact and any resultant improvement or degradation in the visual quality and character of the surroundings area, and planning intention and known planned development of the area. **Table 1** shows the matrix used to assess visual impacts.
- Preparation of computer-generated photomontages illustrate the visual impacts and their significance from representative vantage points.

Table 1 Relationship between Receptor Sensitivity and Magnitude of Change in Defining Impact Significance

		Sensitivity of Public Viewer		
		Low	**Medium**	**High**
Magnitude of Change	**Large**	Slight to Moderate	Moderate or Substantial	Substantial
	Intermediate	Slight to Moderate	Moderate	Moderate or Substantial
	Small	Insubstantial or Slight	Slight to Moderate	Slight to Moderate
	Negligible	Insubstantial	Insubstantial	Insubstantial
	None	None	None	None

**Note: The Magnitude of Change may be Positive or Negative*

2.1.2 Various elements located within the subject site that would generate visual impacts during construction and operation phases will be identified.

2.1.3 In determining the sensitivity of public viewers at VPs, the following factors were considered:

1. Value and quality of existing views
2. Availability and amenity of alternative views
3. Type and estimated number of receiver population (many, medium and few)
4. Duration (long, medium and short) and frequency of view (frequent, occasional and rare)
5. Degree of visibility (no view, glimpse, partial view, vista, open view, and panoramic view)

2.1.4 The sensitivity rating for the VPs are determined as follows:

- High: The VP is highly sensitive to any changes in their viewing experience
- Medium: The VP is moderately sensitive to any changes in their viewing experience
- Low: The VP is only slightly sensitive to any changes in their viewing experience

2.1.5 Visual impacts are determined by evaluating the conditions of the existing landscape and the visual character of the subject site and its surroundings, as well as the degree of integration of the proposed development's components with the existing landscape. Other major factors affecting the magnitude of changes for assessing visual impacts are:

1. Scale of development
2. Compatibility of the proposed development with the surrounding landscape
3. Reversibility of change
4. Viewing distance
5. Potential blocking of view
6. Duration of visual impacts under construction and operation phases

2.1.6 The potential magnitude of change is classified into four categories:

- Negligible: The VPs are likely to suffer no discernible change in their viewing experience
- Small: The VPs are likely to suffer a slight change in their viewing experience
- Intermediate: The VPs are likely to suffer a moderate change in their viewing experience
- Large: The VPs are likely to suffer a significant change in their viewing experience

2.1.7 The possible resultant levels of significance of the visual impacts determined from the magnitude of change and sensitivity of public viewer are categorized as follows:

-
  - Insubstantial: No discernible change to the existing visual quality
  - Slight: Adverse/ beneficial impact where the proposed development would cause a barely perceptible deterioration/ improvement to existing visual quality
  - Moderate: Adverse/ beneficial impact where the proposed development would cause a noticeable deterioration/ improvement to existing visual quality
  - Substantial: Adverse/ beneficial impact where the proposed development would cause significant deterioration/ improvement to existing visual quality

3. METHODOLOGY OF THE LANDSCAPE IMPACT ASSESSMENT

3.1.1 The baseline study in the approved EIA was conducted as follows:

- Identification of the baseline LRs and LCAs found within the 500 m Study Area has been achieved by site visits and desktop study of topographical maps, information databases and photographs. LR types are mapped based on their principal physical landscape and visual characteristics which link them together, rather than their habitat function; for example wet and dry agricultural land and active and abandoned agricultural land are considered as a single LR. In mapping these resources, contiguous areas of the LR types are identified which may not always match ecological habitat maps. LCAs are broader categorizations than LRs, and each one encompasses a number of different LRs.
- Broad-brush tree survey. Identification of the tree species, and approximate proportion of the different tree species, noting dominant species, as well as maturity and rarity of species (including species of conservation interest) within LRs and LCAs in the Study Areas, with special focus within the NDA boundaries.

3.1.2 In determining the sensitivity of LRs and LCAs, the following factors were considered:

1. Quality and maturity, condition and value of landscape resources / character areas, taking into account information from the broad-brush tree survey and general quality, maturity and condition of other types of vegetation.
2. Importance / rarity of landscape resources / character areas.
3. Whether a landscape resource / character area is considered to be of local, regional, national or global importance.
4. Whether there are any statutory or regulatory limitations / requirements relating to the landscape resources / character areas.
5. Ability of the landscape resources / character areas to accommodate change without compromising their essential nature.

3.1.3 The sensitivity of each LR and LCA is based on the values of all the above factors in totality and classified as follows:

- High: The VP is highly sensitive to any changes in their viewing experience
- Medium: The VP is moderately sensitive to any changes in their viewing experience
- Low: The VP is only slightly sensitive to any changes in their viewing experience

3.1.4 The landscape impacts of the Proposed Development are assessed. The assessment adopts a systematic methodology and includes the following:

- Identification of potential sources of landscape impacts. There are various construction works elements and operational procedures that have the potential to generate landscape impacts.

3.1.5 The magnitude of change caused by landscape impacts was rated. The magnitude of change caused by the landscape impact is quantified as far as possible and depends on a number of factors including the following:

1. The physical extent of the impact. This is assessed using a number of factors, including: absolute area/length within the NDA Project Site; relative area/length with the NDA Site compared to the Study Area; and the current land use compared to the proposed land use i.e. taking into account some land, even though within the NDA Project Site, will not be directly impacted e.g. land zoned as “Green Belt” will remain unchanged. (Ranked as small, medium or large)
2. Compatibility of the proposed development with the surrounding landscape
3. Reversibility of change
4. Duration of visual impacts under construction and operation phases

3.1.6 The magnitude of landscape change on each LR/LCA is based on the values of all the above factors in totality and classified as follows:

- Negligible: The VPs are likely to suffer no discernible change in their viewing experience
- Small: The VPs are likely to suffer a slight change in their viewing experience
- Intermediate: The VPs are likely to suffer a moderate change in their viewing experience
- Large: The VPs are likely to suffer a significant change in their viewing experience

3.1.7 The possible resultant levels of significance of the visual impacts determined from the magnitude of change and sensitivity of public viewer are categorized as follows:

Table 2 Relationship between Receptor Sensitivity and Magnitude of Change in Defining Impact Significance

		Sensitivity of Public Viewer		
		Low	**Medium**	**High**
Magnitude of Change	**Large**	Slight to Moderate	Moderate or Substantial	Substantial
	Intermediate	Slight to Moderate	Moderate	Moderate or Substantial
	Small	Insubstantial or Slight	Slight to Moderate	Slight to Moderate
	Negligible	Insubstantial	Insubstantial	Insubstantial
	None	None	None	None

**Note: The Magnitude of Change may be Positive or Negative*

- Insubstantial: No discernible change to the existing visual quality
- Slight: Adverse/ beneficial impact where the proposed development would cause a barely perceptible deterioration/ improvement to existing visual quality
- Moderate: Adverse/ beneficial impact where the proposed development would cause a noticeable deterioration/ improvement to existing visual quality
- Substantial: Adverse/ beneficial impact where the proposed development would cause significant deterioration/ improvement to existing visual quality

4. SUMMARY OF PROPOSED CHANGES UNDER OZP AMENDMENTS AND S.16 PLANNING APPLICATION

4.1 Proposed Changes under OZP Amendments

4.1.1 Site 4 is proposed for a multi-storey building (MSB) to be used for Logistics Facilities. This site will be reserved to support sustainable development of relevant industries which are currently operating at the brownfields. Site 5 is proposed bus depot development with the provision of public heavy goods vehicle park to serve the local residents. Site 6 continues the planned pattern of Public Housing Development along the south side of the Ng Tung River. A sports centre is also proposed at the non-domestic portion of the southern portion of Site 6 to address the district need identified.

4.1.2 Site B2-7 is proposed to be rezoned from “Residential (Group A)2” to “Residential (Group A)6” to relax the development intensity and building height and include the Road L7 as part of the public housing development.

4.1.3 Site C2-5 and C2-6 are proposed to be relaxed the building height restriction from 5 storeys to 8 storeys to provide flexibility at the detailed design stage.

4.1.4 **Table 3** and **Table 4** summarise the land use changes and revised development schemes, and **Appendix A** shows the locations of the sites listed.

Table 3 Revised land use schedule and Changed BH in FLN NDA

Site No.	Land Use under OZP Compliant Scheme	BH (before changes)	Proposed Land Use	BH (after changes)	Land Use Change
4	Government, Institution or Community (Police Driving and Traffic Training Division and Weapons Training Division)	7 storeys	• Logistics Facilities	100mPD	Yes
5	Government, Institution or Community (Police Driving and Traffic Training Division and Weapons Training Division)	7 storeys	• Bus Depot & Public Heavy Goods Vehicle Park	60mPD	Yes
6	Other Specified Uses (Parking and Operation Facilities for Environmentally Friendly Transport System)	30mPD	• Public Housing (Southern Portion) • Open Space • Sport Centre	95-110mPD / 8 storeys	Yes
B2-7	Public Housing	120mPD	-	145mPD	No
C2-5	Government, Institution or Community (Clinic/ Health Centre)	5 storeys	-	8 storeys	No
C2-6	Government, Institution or Community (Community Hall, Refuse Collection Point and Sports Centre)	5 storeys	-	8 storeys	No

Table 4 Revised development scheme in FLN NDA

Site No.	Proposed Uses	Site Area (ha)	No. of Flats	Employment	Population
4	Logistics Facilities	5.22	-	4,566	-
5	Bus Depot & Heavy Goods Vehicle Park	3.27	-	200	-
6	Public Housing	2.15	2,446	259	6,115
	Sports Centre and RCP	0.76	-	-	-
B2-7	Public Housing	1.50	1,950	781	4,875
Total			**4,396**	**5,806**	**10,990**

4.2 Proposed Changes under S.16 Planning Application

4.2.1 The development intensity of housing sites is proposed to be intensified through s.16 application. The proposed changes to BH restriction are shown in **Table 5** and **Appendix A** shows the locations and changes in development parameters of the sites. The provision of greenery coverage will be achieved as required in Chapter 4 of HKPSG to cater for the population increase.

Table 5 Changes in maximum BH before and after intensification (sites with no BH change are shaded)

Site No.	Location	Maximum BH before intensification / land use change	Maximum BH after intensification / land use change
A1	Northwest of Area 6	75-90mPD	95-110mPD
A2	Northeast of Area 6	75-90mPD	95-110mPD
A3	Southeast of Area 6	120mPD	130mPD
B1	Area 7	55mPD	55mPD
A4	North of Area 8	90mPD	100mPD
A5	South of AreA7	120mPD	125mPD
B3	South of Area 10	80mPD	80mPD
B2	North of Area 10	75mPD	75mPD
B4	East of Area 10	75mPD	75mPD
A6	Further West of Area 13	75mPD	97.5mPD
B5@	East of Area 13	75mPD	80mPD
B6	West of Area 14	110mPD	120mPD
A7	North of Area 14	110mPD	135mPD
B7	South of Area 14	115mPD	140mPD
A8	West of Area 15	90mPD	115mPD
B8	Northwest of Area 16	110mPD	120mPD
B9	Northeast of Area 16	110mPD	120mPD
B10	Southwest of Area 16	110mPD	120mPD
B11	Southeast of Area 16	110mPD	120mPD
A9	Area 17	105mPD	135mPD

Remarks: @ B5a and B5b are combined for review.

5. ASSESSEMNT AREA

5.1.1 The extent of the assessment area for visual envelope was determined according to the Methodology of the Visual Impact Assessment (Paragraph 2.1.1), and is shown in **Appendix B.**

6. VIEWING POINTS

6.1.1 Nine key VPs are selected as representative views for visual appraisal. The descriptions and locations of these VPs are provided in **Table 6** below, and photomontages showing those views before and after the abovementioned changes are provided in **Appendix C**.

Table 6 List of Selected VPs and Sensitivity of VPs

VP no.	VP Location	Description	Application sites in view	Type and Sensitivity of Identified VPs in Proximity
A1	Northern Hillside overlooking Hung Kiu San Tsuen	• Located up the hillside on the northern side of Ng Tung River • VP overlooks Hung Kiu San Tsuen towards the southern side of Ng Tung River • The FLN site is partially blocked by tree cover, new developments are visible above the tree line	Site 4, Site 5, Site 6 A1, A2, A3, A4, A5, B2, B3, B4 B2-7	Local Low-rise Residential VP – **High**
A2	Northern Bank of Ng Tung River near Sheung Shui Wa Shan	• Located on the northern bank of Ng Tung River • VP looks downriver • Buildings at Sites 4-6 are visible from the promenade	Site 4, Site 5, Site 6 A1 B2-7	Local Low-rise Residential VP – **High**
A3	Eastern Bank of Intersection between Ng Tung River and Shek Sheung River	• Located on the eastern bank of Shek Sheung River • Looking upriver towards Site 4 • Buildings at Site 4 are visible, partially blocking the view of the hillside beyond	Site 4, Site 5	Local Low-rise Residential VP – **Medium**
A4	Mun Hau Tsuen	• Located on a pedestrian footbridge outside Mun Hau Tsuen • VP looks north up the road towards the river • Buildings at Site 6 are partially visible from behind existing developments and vegetation	Site 6 A1, A2, A3, A4, A5 B2-7	Local High-rise Residential VP – **High**
A5	Ling Shan Road	• Located on the road, looking northward towards the eastern portion of the FLN NDA • Proposed developments with BH change are in view above the tree line.	A6, A7, A9, B5, B5, B6, B7, B10	Local Low-rise Residential VP – **Medium**

A6	Opposite from Society for Indigenous Learning	• Located on the southern bank of Ng Tung River looking North towards site B1 • View towards the mountains from the promenade Proposed buildings at B1 is visible above the tree line	B1	Regional Recreational VP – **Medium**
F3	Tsung Shan, High Hill	• Located at a vantage point on hiking trail on High Hill • Overlooks entire eastern portion of FLN NDA, the mass of new developments is visible above the tree line	A6, A7, A8, A9, B5, B6, B7, B8, B9, B10, B11 C2-5, C2-6	Strategic Recreational VP – **Medium**
F5	Kan Lung Tsuen	• Located in Kan Lung Tsuen • VP looks across Ma Wat River towards the FLN NDA site • The FLN site is blocked by existing developments and topography, upper portions of residential buildings in FLN will be partially visible behind existing developments and vegetation	A8	Local Low-rise Residential VP – **High**
F23	Sheung Shui Fire Station	• Located at Sheung Shui Fire Station • VP looks north up the road towards the river • The FLN site is nearly fully blocked by tree cover and topography, new developments are visible above the tree line	A1, A2, A3, A4, A5, B2, B3, B4 B2-7	Local Recreational (& Occupational & Travelling) VP – **Low**

7. LANDSCAPE IMPACT ASSESSMENT

7.1 Findings of Landscape Impact Assessment

7.1.1 The landscape impact assessment in FLN NDA has been carried out considering baseline Landscape Resources (LRs) and Landscape Character Areas (LCAs).

Changes in Significance of Landscape Impact in Sites 4 to 6 of FLN NDA

7.1.2 The changes in the significance of the impact on the Landscape Resources (LR) and Landscape Character Areas (LCA) of Sites 4 to 6 are summarised in **Table 6**. For figures and location plans of existing habitats, LRs, LCAs, refer to the Approved EIA as extracted in **Appendices D to F**:

Table 6 Changes in the significance of Landscape Impact in the NDAs

Proposed changes in building layout and building height restriction	Potential Impacts on Landscape Resources (LRs)	Potential Impacts on Landscape Character Areas (LCAs)
FLN Site 4 Provision of MSB as logistic facilities Building Height Restriction of 100mPD	Ng Tung River (Fanling District) (Channelized) (FLR 1.1) A tributary to Ng Tung River runs through the boundaries of FLN Site 4. The land use was changed from Police Driving and Traffic Training Complex to logistic facilities, which will similarly affect the tributary. FLR 1.1 is expected to experience effectively **Small change** in impact significance since the overall area affected remains relatively small. Fu Tei Au Water Ponds (FLR 3.3) One very small pond is within Site 4 and would be lost to the previous land use of Police Driving and Traffic Training Complex. The new land use of logistic facilities is also incompatible and requires removal of the pond. There is **Small change** in the impact significance to FLR 3.3. Hung Kiu San Tsuen Lowland Woodland (FLR 7.2) Both land uses before and after land use change is incompatible with the current use. **Small change** in impact significance is expected. Fu Tei Au Agricultural Land (FLR 9.2) Fu Tei Au Agricultural Land was previously decided to be preserved as Police Driving and Traffic Training Complex. As the site has now been proposed for logistic facilities, the land use of this area will remain incompatible uses. FLR 9.2 is predicted to experience **Moderate change** in the significance of impact during the construction and operation from the approved EIA & ER report. As the agricultural land has been partially	Rural and Urban Peripheral Village Landscape (FLCA2) & Natural Hillside Landscape (FLCA1) This area will be dominated by MSB with building height restriction of 100mPD instead of Police Driving and Traffic Complex which is not compatible with the current LCA. FLCA2 is predicted to experience **Small change** in the significance of impact during the construction and operation from the approved EIA &ER report. A small portion of Natural Hillside Landscape (FLCA1) would be removed due to the development of logistic facilities. It is predicted to experience **Small change** in the significance of impact during the construction and operation from the approved EIA &ER report.

Proposed changes in building layout and building height restriction	Potential Impacts on Landscape Resources (LRs)	Potential Impacts on Landscape Character Areas (LCAs)
	abandoned and dominated by fruit trees and grasses, it is considered having medium sensitivity and the adverse impact should be able to be mitigated by providing high quality open space in other nearby sites within the FLN development area. <u>Sheung Shui Industrial/Open Storage Area (FLR 13.1)</u> FLR 13.1 is an existing industrial area. As the site is now proposed for logistic facilities, the land use will remain compatible uses. There would be **Small change** in magnitude of impact during the construction and operation from the approved EIA &ER report.	
FLN Site 5 Provision of bus depot and public heavy goods vehicular park Building Height Restriction of 60mPD	<u>Mitigation Wetland (FLR 4.2)</u> FLR 4.2 includes an existing meander which was expected to be irreversibly lost during site formation for the land use of Weapons Training Division. As the site is now proposed to for bus depot and public heavy goods vehicular park, the land use will remain incompatible and there would be **Small change** in impact significance during the construction and operation from the approved EIA &ER report. <u>Hung Kiu San Tsuen Lowland Woodland (FLR 7.3)</u> A very small area of the woodland falls within Site 5. As both land uses before and after land use change are incompatible with the current use, **Small change** in impact significance is expected. <u>Agricultural Land at Sheung Shui Wa Shan (FLR 9.5)</u> Only a small area of FLR 9.5 falls within Site 5. As both land uses before and after land use change are incompatible with the current use and it will still be lost to site clearance	<u>Industrial Landscape (FLCA4)</u> FLCA4 in Site 5 is predicted to experience **Slight change** in the significance of impact during the construction and operation from the approved EIA &ER report. The provision of bus depot and public heavy goods vehicular park, instead of Weapons Training Division and roads, with building height restriction of 60mPD might slightly affect the characteristics of this area as it was mainly comprised of factory buildings, vacant land and open storage.
	and formation, **Small change** in impact significance is expected. <u>Sheung Shui Industrial/Open Storage Area (FLR 13.1)</u> FLR 13.1 is an existing industrial area. As the site is now proposed for bus depot and public heavy goods vehicular park, the land use will remain compatible uses. There would be **Small change** in significance of impact.	
FLN Site 6 Provision of 4 public housing A sewage pumping station with building height restriction of 15 mPD will be built next to the new sports centre and refuse collection point. Building Height Restriction of 95mPD at the north and 110mPD at the south of Site 6	<u>Sheung Shui Industrial/Open Storage Area (FLR 13.1)</u> FLR 13.1 is an existing industrial area. As the site is now proposed for public housing, and a sewage pumping station, there would not be discernible change in magnitude of impact on LRs from the approved EIA & ER report. FLR 13.1 is predicted to experience **Small change** in the significance of impact during the construction and operation from the approved EIA &ER report.	<u>Industrial Landscape (FLCA4)</u> FLCA4 in Site 6 is predicted to experience **Moderate change** in the significance of impact during the construction and operation from the approved EIA &ER report.

7.1.3 In summary, FLR 9.2 is predicted to experience **Moderate change** in the significance of impact during the construction and operation, all other FLRs falling within Sites 4 to 6 are predicted to experience **Small change** in significance of impact as a result of land use change**.**

7.1.4 FLCA1 & FLCA2 is predicted to experience **Small change** in the significance of impact due to the removal of partial hillside woodland and FLCA4 is predicted to experience **Slight / Moderate change** in the significance of impact due the changes of land use in FLN Site 5 & 6.

<u>Landscape Impact Review of Sites 4 to 6</u>

7.1.5 Detailed comparisons with the proposed changes in the approved EIA & ER report are listed in **Table 7 and 8**. The potential change in Landscape impacts due to the proposed changes are assessed and described as follows:

Table 7 Impact Significance on the Affected LRs during the Construction & Operation Phase

Affected LR	Magnitude of change (Large/ Intermediate/ Small/ Negligible)		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified in the EIA & ER report		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified based on the proposed development scheme in P&E report 2021	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Ng Tung River (Fanling District) (Channelized) (FLR-1.1)	Small	Small	Slight	Slight	Slight	Slight
	Site 4 now designated as Logistics Facilities rather than Police Driving and Traffic Training Complex interfaces with the LR, covering a short (~250 m) tributary to the river. Overall, only a small length of the LR will potentially be affected by the Project. Since the main river channel will hardly be affected, the impact significance remains **Slight** before mitigation.					
Fu Tei Au Water Ponds (FLR-3.3)	Small	Small	Slight	Slight	Slight	Slight
	One very small pond falls within Site 4 (Logistics Facilities). There will be no effective change in magnitude or significance of change due to land use change as it will still be lost during site formation. Since the majority of these ponds in the NDA will remain unchanged by the Project, the landscape impact is considered **Slight** before any mitigation.					
Mitigation Wetland (FLR-4.2)	Large	Large	Substantial	Substantial	Substantial	Substantial
	Of the 6 mitigation wetland areas along Ng Tung River in the RODP, one lies within Site 5 which was designated for incompatible uses both before land use change (Weapons Training Division) and after land use change (Bus Depots & Public Heavy Goods Vehicle Park). In the worst case scenario, less than half of the LR will be affected. However, the loss of the LR is considered irreversible. Therefore, the landscape impact is considered **Substantial** before any mitigation.					
Lowland Woodland at Fu Tei Au and Sheung Shui Water Treatment Works (FLR-7.2)	Intermediate	Intermediate	Moderate	Moderate	Moderate	Moderate
	About a quarter of this LR falls within Site 4. Both the land use in Site 4 before land use change (Sewage Pumping Station and Police Driving and Traffic Training Complex) and after land use change (Logistics Facilities) are incompatible with the LR. The woodland at The Sourthern portion of Site 4 now designed as Local Open Space may still be lost due to site clearance and formation works. Overall given the small area affected but taking into account the loss of some trees, the landscape impact is considered **Moderate** before any mitigation.					
Hung Kiu San Tsuen Lowland Woodland (FLR-7.3)	Small	Small	Slight	Slight	Slight	Slight
	Only a very small area of this LR falls within the RODP, all of which will be affected by incompatible elements at Site 5 both before (Weapons Training Division) and after (Bus Depots & Public Heavy Goods Vehicle Park) land use change. Since the area affected is so small, despite the lack of compatibility, the overall landscape impact is considered to be **Slight** before mitigation.					
Fu Tei Au Agricultural Land (FLR 9.2)	Large	Large	Moderate	Moderate	Moderate	Moderate
	The existing agricultural land will be completely removed here during site clearance and site formation. MSB for logistics facilities will be built, instead of Police Driving and Traffic Training Complex (Site 4). The landscape impact is considered **Moderate** before any mitigation.					

Affected LR	Magnitude of change (Large/ Intermediate/ Small/ Negligible)		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified in the EIA & ER report		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified based on the proposed development scheme in P&E report 2021	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Agricultural Land at Sheung Shui Wa Shan (FLR-9.5)	Intermediate	Intermediate	Moderate	Moderate	Moderate	Moderate
	The existing agricultural land will be completely removed at Site 5 during site clearance and site formation. Bus Depots & Public Heavy Goods Vehicle Park will be built, instead of Weapons Training Division (Site 5). The landscape impact is considered **Moderate** before any mitigation.					
Sheung Shui Industrial / Open Storage Area (FLR-13.1)	Large (partly beneficial)	Intermediate (partly beneficial)	Slight	Slightly beneficial	Slight	Slightly beneficial
	The LR within the RODP is largely open storage, car parks and warehouses, Parts of the LR lie in Site 4, 5 and 6. During construction, the sites will be cleared of their existing structures and some site formation work will be necessary. By operation the sites will be fairly compatible with the current LR. As a result, the landscape impact is considered **Slight** at construction and **Slightly beneficial** at operation before any mitigation.					

Table 8 Impact Significance on the Affected LCAs during the Construction & Operation Phase

Affected LCA	Magnitude of change (Large/ Intermediate/ Small/ Negligible)		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified in the EIA & ER report		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified based on the proposed development scheme in P&E report 2021	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Natural Hillside Landscape (FLCA1)	Small	Small	Moderate	Moderate	Moderate	Moderate
	A small portion of Natural Hillside Landscape (FLCA1) would be removed due to the construction and operation of the logistic facilities (Site 4), but the majority of this LCA will remain unaffected by the Project. The magnitude of change is considered to be **Small**. The impact significance of LCA will remain **Moderate** during the construction and operation.					
Rural and Urban Peripheral Village Landscape (FLCA2)	Small	Small	Moderate	Moderate	Moderate	Moderate
	The small or medium sized villages with modern and traditional houses will be replaced by MSB and the agricultural land (at Site 4) will no longer be preserved and changed to a new local open space. The LCA is predicted to experience Moderate impact from the beginning of construction.					
Industrial Landscape (FLCA4)	Moderate	Moderate	Slight	Slight	Moderate	Moderate
	The provision of bus depots and public heavy goods vehicular park in Site 5 will slightly affect the characteristics of this area. The LCA is predicted to experience Slight impact during construction and operation. The provision of new public housing development of 95-110mPD with sewage pumping station, sports centre and refuse collection point in Site 6 will affect the characteristics of this area, as it was mainly comprised of low-rise factory buildings, vacant land and open storage. The LCA is predicted to experience **Moderate** impact during construction and operation.					

Potential Significance of Landscape Impact on the Remaining Phase of FLN NDA LRs

7.1.6 In the approved EIA Report, **Substantial** adverse impacts in FLN NDA were predicted at construction for the following four LRs: Ma Wat River (Channelized) (FLR-1.4), Mitigation Wetland (FLR-4.2), Cham Shan and Wa Shan Hillside Woodland (FLR-6.2), and Shrubland/Grassland Mosaic at Lung Shan (FLR-8.4). All these will experience **Substantial** adverse impacts at operation also, except Ma Wat River (Channelized) (FLR-1.4) which is predicted to have **Moderate** adverse impacts at operation.

7.1.7 The LRs which were predicted to experience **Moderate** adverse impacts at construction before mitigation are: Water Course through Ma Shi Po Agricultural Land (Channelized) (FLR-1.5), Natural Streams in Tin Ping Shan Agricultural Land (FLR-2.1), Natural Streams at Siu Hang San Tsuen (FLR-2.4), Hillside Woodland at Sheung Shui Water Treatment Works (FLR-6.1) and at Lung Shan and Wa Mei Shan (FLR-6.4), Lowland Woodland at Fu Tei Au and Sheung Shui Water Treatment Works (FLR-7.2) and at Sacred Hill (FLR-7.4), Shrubland/Grassland Mosaic at Cham Shan and Wa Shan (FLR-8.3), Fu Tei Au Agricultural Land (FLR-9.2), Tin Ping Shan Tsuen Agricultural Land (FLR- 9.4), Agricultural Land at Sheung Shui Wa Shan (FLR-9.5), Agricultural Land in Wu Nga Lok Yeung, Siu Hang San Tsuen, Siu Hang Tsuen and Lung Yeuk Tau (FLR-9.6) and Rural Development Areas in the North of FLN NDA (FLR- 12.3) and around Ma Shi Po (FLR-12.8).

7.1.8 The remaining LRs will all experience **Slight** adverse impacts or **Insignificant** impacts at construction and operation, with the exception of all the Industrial / Open Storage Areas i.e. those in Sheung Shui (FLR13.1), where the land use will improve, largely due to residential uses, and the impacts at operation are considered to be slightly and moderately beneficial overall respectively.

7.2 Mitigation Measures

7.2.1 **Table 9** below describes the Recommended Mitigation Measures for Sites 4 to 6. For explanations of the mitigation measure (MM) types, please refer to in **Table 15**.

Table 9 Recommended Mitigation Measures for Sites 4-6

Proposed changes in building layout and building height restriction	Mitigation Measures Proposed for Landscape Resources (LRs)	Mitigation Measures Proposed for Landscape Character Areas (LCAs)
FLN Site 4 Provision of MSB as logistic facilities Building Height Restriction of 100mPD	Ng Tung River (Fanling District) (Channelized) (FLR 1.1) MM14.3, MM14.4 At Site 4, ecologically sensitive planting / planting improvements shall be applied along the embankment at the edge of Site 5 to support the ecology associated with the watercourse e.g. aquatic, riparian and bird species. Bridges and / or box culverts shall be used to prevent watercourse modification of the tributary to NG Tung River that passes through the site. After mitigation, FLR 1.1 is expected to experience **Insignificant** residual impact at construction and operation. Fu Tei Au Water Ponds (FLR 3.3) MM13, MM15 Compensation for the loss of the small pond is proposed in Long Valley Nature Park. The feature meander to the North of application site A3 shall also be revitalized and replanted to act as a water purification and ecological wetland, mitigating the loss of the pond. After mitigation, FLR 3.3 is expected to experience **Slight** residual impact at construction and **Insignificant** residual impact at operation. Hung Kiu San Tsuen Lowland Woodland (FLR 7.2) MM4, MM5, MM6, MM7, MM8 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Ecologically valuable and native trees such as *Celtis* sinensis that support pollinators and birds, especially egrets, shall be planted at the promenade to mitigate the loss of woodland. After mitigation, FLR 7.2 is expected to experience **Moderate**	Natural Hillside Landscape (FLCA1) MM1, MM4, MM5, MM6, MM7, MM10, MM12 Topographical change and site formation shall be minimized at the site. Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Ecologically beneficial ornamentals in line with the naturalistic theme for the area e.g. *Cleistocalyx nervosum* and *Celtis sinensis* shall be planted to mitigate visual impacts and blend with the natural surroundings. Green roofs with attractive greenery visually echoing the naturalistic theme is recommended, and roadside planting shall buffer traffic and enhance the pedestrian experience. After mitigation, FLCA 1 is expected to experience **Slight** residual impact at construction and operation. Rural and Urban Peripheral Village Landscape (FLCA2) MM1, MM2, MM4, MM5, MM7, MM8, MM10, MM12 Topographical change and site formation shall be minimized at the site. Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Detailed design shall bring out the cultural character. For example, the earthen tones and red color of the bricks produced in a historic kiln in the area and utilized by villagers

Proposed changes in building layout and building height restriction	Mitigation Measures Proposed for Landscape Resources (LRs)	Mitigation Measures Proposed for Landscape Character Areas (LCAs)
	residual impact at construction and **Slight** residual impact at operation after mitigation. Fu Tei Au Agricultural Land (FLR 9.2) MM4, MM5, MM7 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. To mitigate the loss of agricultural land, native rushes / grasses such as *Juncus effusus* and *Polypogon fugax* are proposed to support riparian fauna. After mitigation, FLR 9.2 is expected to experience **Moderate** residual impact at construction and operation. Sheung Shui Industrial/Open Storage Area (FLR 13.1) MM4, MM5, MM7, MM12 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Natives and ornamentals such as *Liquidambar formosana* shall be planted to offer buffering effect and improve connectivity. Soft landscaping shall be provided along roads to soften the development. After mitigation, FLR 13.1 is expected to experience **Insignificant** residual impact at construction and **Slightly beneficial** residual impact at operation.	shall be echoed in the planting and paving schemes. Similar to the treatment for FLCA1, compensatory planting, green roofs and roadside planting shall reinforce the local theme and blend with the environment. Compensatory woodlands are expected to further mitigate the impacts. After mitigation, FLCA 2 is expected to experience **Moderate** residual impact at construction and operation.
FLN Site 5 Provision of bus depot and public heavy goods vehicular park Building Height Restriction of 60mPD	Mitigation Wetland (FLR 4.2) MM13 Section 12.9.1.2.1 of the approved EIA report states that setting up the Long Valley Nature Park (LVNP) with enhanced wetlands and a slight increase in wetland areas shall reduce the impact of the loss of a mitigation wetland in Site 5. After mitigation, **Moderate** residual impact at	Industrial Landscape (FLCA4) MM4, MM5, MM7 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. The amenity value shall be improved by compensatory planting similarly to at

Proposed changes in building layout and building height restriction	Mitigation Measures Proposed for Landscape Resources (LRs)	Mitigation Measures Proposed for Landscape Character Areas (LCAs)
	construction and operation is expected. Hung Kiu San Tsuen Lowland Woodland (FLR 7.3) MM4, MM5, MM7, MM8 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Native species shall be planted to buffer against the development and offer shelter for birds. The >16ha of compensatory woodland distributed across KTN and FLN NDAs shall help mitigate the small loss at Site 5. After mitigation, **Slight** residual impact at construction and **Insignificant** residual impact at operation is expected. Agricultural Land at Sheung Shui Wa Shan (FLR 9.5) MM4, MM5, MM7 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Riparian flora such as *Ludwigia adscendens* and *Leersia hexandra* are proposed at the opposite feature meander to mitigate the impact. After mitigation, **Moderate** residual impact at construction and operation is expected. Sheung Shui Industrial/Open Storage Area (FLR 13.1) MM4, MM5, MM7, MM12 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Natives and ornamentals such as Similar to the suggested treatment at Site 4, *Liquidambar formosana* shall be planted to offer buffering effect and support ecoogy. Soft landscaping shall be provided along roads to soften the development. After mitigation,	Site 4. After mitigation, FLCA 4 is expected to experience **Slight** residual impact at construction and operation.

Proposed changes in building layout and building height restriction	Mitigation Measures Proposed for Landscape Resources (LRs)	Mitigation Measures Proposed for Landscape Character Areas (LCAs)
	FLR 13.1 is expected to experience **Insignificant** residual impact at construction and **Slightly beneficial** residual impact at operation.	
FLN Site 6 Provision of 4 public housing and 1 regional open space A sewage pumping station with building height restriction of 15 mPD will be built next to the new sports centre and refuse collection point. Building Height Restriction of 95mPD at the north and 110mPD at the south of Site 6	<u>Sheung Shui Industrial/Open Storage Area (FLR 13.1)</u> MM4, MM5, MM7, MM12 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. Environmental suitability for human and ecological wellbeing will be facilitated by the planting of natives such as *Cleistocalyx nervosum*. Roads shall be softened by appropriate multilayered roadside shrub and tree planting. After mitigation, FLR 13.1 is expected to experience **Insignificant** residual impact at construction and **Slightly beneficial** residual impact at operation.	<u>Industrial Landscape (FLCA4)</u> MM4, MM5, MM7 Retained trees shall be carefully protected during construction and those unavoidably affected shall be transplanted where practical. A more comfortable living and travelling environment shall be created with ecologically-sensitive ornamentals such as *Melastoma malabrathicum* and a mix of evergreen and deciduous trees with seasonal color. After mitigation, FLCA 4 is expected to experience **Slight** residual impact at construction and operation.

7.2.2 In summary, there is no expected change in residual impacts on LRs and LCAs in Sites 4 to 6 when compared to the approved EIA report.

7.3 Residual Impacts

7.3.1 **Table 10** illustrates the significance of residual impacts upon mitigation on FLN NDA LRs.

Table 10 Significance of Residual Impacts Upon Mitigation on FLN NDA LRs

LR Code	Name	Proposed changes in Advance Work Phase that are relevant to the FLN NDA Remaining Phase Works	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		
			Construction	Operation	Construction	Operation	Construction	Operation (Day 1)	Operation (Year 10)
FLR 1	Channelized Water Course								
FLR-1.1	Ng Tung River (Fanling District) (Channelized)	Fanling Bypass Western Section is shifted to south (DP9)	Slight	Slight	MM14.3, MM14.4	MM14.3, MM14.4	Insignificant	Insignificant	Insignificant
FLR-1.2	Shek Sheung River (Channelized)		Slight	Slight	MM14.3, MM14.4	MM14.3, MM14.4	Insignificant	Insignificant	Insignificant
FLR-1.3	Sheung Yue River (Channelized)		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-1.4	Ma Wat River (Channelized)		Substantial	Moderate	MM4, MM5, MM7, MM14.3	MM4, MM5, MM7, MM14.3	Moderate	Moderate	Slight
FLR-1.5	Water Course through Ma Shi Po Agricultural Land (Channelized)		Moderate	Moderate	n/a	n/a	Moderate	Moderate	Moderate
FLR 2	Water Course								
FLR-2.1	Natural Stream in Tin Ping Shan Agricultural Land	n/a	Moderate	Moderate	n/a	n/a	Moderate	Moderate	Moderate
FLR-2.2	Natural Stream at Cham Shan and Wa Shan		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-2.3	Natural Streams at Lung Shan		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-2.4	Natural Streams at Siu Hang San Tsuen		Moderate	Moderate	MM14.2, MM14.3, MM14.4	MM14.2, MM14.3, MM14.4	Slight	Slight	Insignificant
FLR 3	Water Pond								
FLR-3.1	Ho Sheung Heung and Long Valley Water Ponds	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-3.2	Water Ponds within the Closed Area		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-3.3	Fu Tei Au Water Ponds		Slight	Slight	MM13, MM15	MM13, MM15	Slight	Insignificant	Insignificant
FLR-3.4	Water Ponds in Eastern Rural Area		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-3.5	Wai Loi Tsuen Water Pond		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR 4	Marsh								
FLR-4.1	Marshes in Long Valley	Fanling Bypass Western Section is shifted to south (DP9)	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-4.2	Mitigation Wetland		Substantial	Substantial	MM13	MM13	Moderate	Moderate	Moderate

LR Code	Name	Proposed changes in Advance Work Phase that are relevant to the FLN NDA Remaining Phase Works	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial/Moderate/ Slight/ Insignificant)		
			Construction	Operation	Construction	Operation	Construction	Operation (Day 1)	Operation (Year 10)
FLR 5	Plantation								
FLR-5.1	Plantation in the Vicinity of Wai Loi Tsuen	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-5.2	Ha Pak Tsuen Plantation		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-5.3	Plantation in the Vicinity of On Kwok Villa and Noble Hill		Slight	Slight	MM4, MM5, MM7	MM4, MM5, MM7	Slight	Insignificant	Insignificant
FLR 6	Hillside Woodland								
FLR-6.1	Sheung Shui Water Treatment Works Hillside Woodland	n/a	Moderate	Moderate	MM1, MM4, MM5, MM6, MM7, MM8	MM1, MM4, MM5, MM6, MM7, MM8	Slight	Slight	Insignificant
FLR-6.2	Cham Shan and Wa Shan Hillside Woodland		Substantial	Substantial	MM1, MM4, MM5, MM6, MM7, MM8	MM1, MM4, MM5, MM6, MM7, MM8	Moderate	Slight	Slight
FLR-6.3	Ma Wat Wai Hillside Woodland		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-6.4	Hillside Woodland at Lung Shan and Wa Mei Shan		Moderate	Moderate	MM1, MM4, MM5, MM6, MM7, MM8	MM1, MM4, MM5, MM6, MM7, MM8	Slight	Slight	Insignificant
FLR 7	Lowland Woodland								
FLR-7.1	Vernon Pass Woodland	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-7.2	Lowland Woodland at Fu Tei Au and Sheung Shui Water Treatment Works		Moderate	Moderate	MM4, MM5, MM6, MM7, MM8	MM4, MM5, MM6, MM7, MM8	Moderate	Slight	Slight
FLR-7.3	Hung Kiu San Tsuen Lowland Woodland		Slight	Slight	MM4, MM5, MM7, MM8	MM4, MM5, MM7, MM8	Slight	Insignificant	Insignificant
FLR-7.4	Sacred Hill Lowland Woodland		Moderate	Moderate	MM4, MM5, MM7, MM8	MM4, MM5, MM7, MM8	Moderate	Slight	Slight
FLR-7.5	Ling Hill and Ling Shan Tsuen Lowland Woodland		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR 8	Shrubland/Grassland Mosaic								
FLR-8.1	Shrubland/Grassland Mosaic along Sheung Yue River and Ng Tung River	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-8.2	Fu Tei Au Shrubland/Grassland Mosaic		Slight	Slight	MM4, MM5, MM7	MM4, MM5, MM7	Insignificant	Insignificant	Insignificant
FLR-8.3	Shrubland/Grassland Mosaic at Cham Shan and Wa Shan		Moderate	Moderate	MM1, MM4, MM5, MM6, MM7, MM9, MM10	MM1, MM4, MM5, MM6, MM7, MM9, MM10	Slight	Slight	Insignificant
FLR-8.4	Shrubland/Grassland Mosaic at Lung Shan		Substantial	Substantial	MM1, MM4, MM5, MM6, MM7, MM9, MM10	MM1, MM4, MM5, MM6, MM7, MM9, MM10	Moderate	Slight	Slight

LR Code	Name	Proposed changes in Advance Work Phase that are relevant to the FLN NDA Remaining Phase Works	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		
			Construction	Operation	Construction	Operation	Construction	Operation (Day 1)	Operation (Year 10)
FLR 9	Agricultural Land								
FLR-9.1	Agricultural Land in Ho Sheung Heung and Long Valley	Fanling Bypass Western Section is shifted to south (DP9)	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-9.2	Fu Tei Au Agricultural Land		Moderate	Moderate	MM4, MM5, MM7	MM4, MM5, MM7,	Moderate	Moderate	Moderate
FLR-9.3	Agricultural Land between Ng Tung River and Shek Sheung River		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-9.4	Tin Ping Shan Tsuen Agricultural Land		Moderate	Moderate	MM4, MM5, MM7	MM4, MM5, MM7,	Moderate	Moderate	Moderate
FLR-9.5	Agricultural Land at Sheung Shui Wa Shan		Moderate	Moderate	MM4, MM5, MM7	MM4, MM5, MM7,	Moderate	Moderate	Moderate
FLR-9.6	Agricultural Land in Wu Nga Lok Yueng, Siu Hang San Tsuen, Siu Hang Tsuen and Lung Yeuk Tau		Moderate	Moderate	MM4, MM5, MM7	MM4, MM5, MM7,	Moderate	Moderate	Moderate
FLR-9.7	Agricultural Land in South of Sha Tau Kok Road		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR 10	Open Space / Recreational Area								
FLR-10.1	North District Sports Ground	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR 11	Urban Development Area								
FLR-11.1	Lo Wu Correctional Institution	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-11.2	Sheung Shui Urban Development Area		Slight	Insignificant	MM2	n/a	Slight	Insignificant	Insignificant
FLR-11.3	Fanling Urban Development Area		Slight	Insignificant	MM2	n/a	Slight	Insignificant	Insignificant
FLR 12	Rural Development Area								
FLR-12.1	Rural Development Area in Ngam Pin	Fanling Bypass Western Section is shifted to south (DP9)	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-12.2	Rural Development Area in the Vicinity of Fu Tei Au		Slight	Slight	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Insignificant	Insignificant
FLR-12.3	Rural Development Area in the North of FLN NDA		Moderate	Moderate	MM1, MM4, MM5, MM6, MM7, MM9, MM10, MM12	MM1, MM4, MM5, MM6, MM7, MM9, MM10, MM12	Moderate	Slight	Slight
FLR-12.4	Rural Development Area in Sheung Shui Lowland Area		Slight	Slight	MM12	MM12	Slight	Slight	Insignificant
FLR-12.5	Wa Shan Rural Development Area		Slight	Slight	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Insignificant	Insignificant
FLR-12.6	Lung Yeuk Tau Rural Development Area		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-12.7	Rural Development Area at Wo Hop Shek and Lung Shan		Slight	Insignificant	MM4, MM5, MM7	n/a	Insignificant	Insignificant	Insignificant
FLR-12.8	Rural Development Area around Ma Shi Po		Moderate	Moderate	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Moderate	Moderate	Moderate

LR Code	Name	Proposed changes in Advance Work Phase that are relevant to the FLN NDA Remaining Phase Works	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		
			Construction	Operation	Construction	Operation	Construction	Operation (Day 1)	Operation (Year 10)
FLR-12.9	Wu Nga Lok Yeung and Ling Shan Tsuen Rural Development Area	n/a	Slight	Slight	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Insignificant	Insignificant
FLR 13	Industrial / Open Storage								
FLR-13.1	Sheung Shui Industrial/Open Storage Area	n/a	Slight	Slight beneficial	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Slight beneficial	Slight beneficial
FLR-13.2	Fanling Industrial Area		Slight beneficial	Moderate beneficial	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Slight beneficial	Moderate beneficial	Moderate beneficial
FLR 14	Major Transportation Corridor								
FLR-14.1	MTRC East Rail	n/a	Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-14.2	Sha Tau Kok Road (Lung Yeuk Tau)		Slight	Slight	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Insignificant	Insignificant
FLR-14.3	Fanling Highway		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant
FLR-14.4	MTRC near Fanling Highway		Insignificant	Insignificant	n/a	n/a	Insignificant	Insignificant	Insignificant

Potential Significance of Landscape Impact on the Remaining Phase of FLN NDA LCAs

7.3.2 In the approved EIA Report, no substantial impacts were predicted prior to mitigation at construction or operation for the LCAs. Four LCAs were considered to experience **Moderately** significant impacts, including Natural Hillside Landscape in this area (FLCA-1), Rural and Urban Peripheral Village Landscape (FLCA-2), Lowland Agricultural Landscape (FLCA-5), and Major Water Course Corridor Landscape (LCA-7). Impacts prior to mitigation are **Slight** for the remaining LCAs in this area, namely Urban Development Landscape (FLCA-3), and Major Transportation Corridor Landscape (FLCA-6), and all drop to **Insignificant** by year 10 of operation with mitigation measures. The exception was Industrial Landscape (FLCA-4), which will experience a slight beneficial impact from the Project by day 1 of operation.

7.3.3 **Table 11** illustrates the significance of Residual Impacts Upon Mitigation on FLN NDA LCAs.

7.3.4 The potential change in landscape impacts due to the proposed intensification of building heights assessed in the P&E Report 2021 are summarized as follows:

Proposed Changes in Advance Work Phase that are Relevant to the FLN NDA Remaining Phase Works	**Potential Impacts on Landscape Resources and Landscape Character Areas**
Changes in building blocks layout & building heights (Additional 4 public housing in Site 6 at 95-110mPD and intensified building heights at Sites 4 and 5 of between 15-100mPD)	Changes in building height and building blocks layout were considered minor. It was predicted that there would not be any discernible change in magnitude of impact on landscape resources and landscape areas identified in the Approved EIA Report.

7.3.5 Compared to the approved development plan, the BH intensification do not affect the areas of land impacted. Regarding land use changes, the areas requiring topographical change due to the developments remain unchanged and thus shall cause no significant impact on the trees affected.

7.3.6 In conclusion, the design changes are expected to lead to no change in nos. of affected trees within the scope of Agreement No. CE13/2014 (CE). The affected trees will be further evaluated in the Updated Tree Survey Report (C2) and compensated in their specific lots extents according to the requirement under Development Bureau TCW No. 4/2020 - Tree Preservation.

7.3.7 There were no Old and Valuable Trees (OVTs) found in FLN NDA.

7.3.8 In summary, the ER Report showed there is no discernible change in baseline conditions of LRs and LCAs as identified in the Approved EIA. The baseline findings presented in the approved EIA were considered valid.

Table 11 Significance of Residual Impacts Upon Mitigation on FLN NDA LCAs

LCA Code	Name	Proposed changes in Advance Work Phase that are relevant to the FLN NDA Remaining Phase Works	Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial /Moderate/ Slight/ Insignificant)		
			Construction	Operation	Construction	Operation	Construction	Operation (Day 1)	Operation (Year 10)
FLCA-1	Natural Hillside Landscape	Fanling Bypass Western Section is shifted to south (DP9)	Moderate	Moderate	MM1, MM4, MM5, MM6, MM7, MM10, MM12	MM1, MM4, MM5, MM6, MM7, MM10, MM12	Slight	Slight	Slight
FLCA-2	Rural and Urban Peripheral Village Landscape		Moderate	Moderate	MM1, MM2, MM4, MM5, MM7, MM8, MM10, MM12	MM1, MM2, MM4, MM5, MM7, MM8, MM10, MM12	Moderate	Moderate	Moderate
FLCA-3	Urban Development Landscape		Slight	Slight	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Slight	Slight	Insignificant
FLCA-4	Industrial Landscape		Slight	Slight	MM4, MM5, MM7	MM4, MM5, MM7	Slight	Slight	Slight
FLCA-5	Lowland Agricultural Landscape		Moderate	Moderate	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Moderate	Moderate	Moderate
FLCA-6	Major Transportation Corridor Landscape		Slight	Insignificant	MM4, MM5, MM7, MM12	MM4, MM5, MM7, MM12	Insignificant	Insignificant	Insignificant
FLCA-7	Major Water Course Corridor Landscape		Moderate	Slight	MM4, MM5, MM7, MM8, MM14.3	MM4, MM5, MM7, MM8, MM14.3	Slight	Insignificant	Insignificant

8. VISUAL IMPACT ASSESSMENT

The sources of impact would create varying levels of visual impact during construction and operation phases of the Project.

8.1 Key EIA Findings and Subsequent Environmental Studies Review

8.1.1 Due to the revised developments and infrastructure proposed for the NDAs arising from the NENT NDA Study and any circumstance changes subsequent to the approved EIA Report, findings related to Baseline VPs from the approved EIA report were reviewed in the Environmental Review (ER) Report. The findings relevant to the latest Visual assessment are summarised in the following sections.

8.2 Findings of Visual Impact Assessment

8.2.1 Impacts of proposed changes for Sites 4 to 6 in the approved EIA & ER report are listed in **Table 12** and **Table 13**. Potential changes in visual impacts to VPs due to BH intensification in FLN NDA are also assessed and described in **Table 14**.

Table 12 Changes in the significance of Visual Impact for Sites 4 to 6 in FLN NDA

Proposed changes in building layout and BH restriction@	Potential Impacts on VPs
FLN Site 4 Provision of MSB as logistic facilities BH Restriction of 100mPD	Affected VP: Cottage Area Lining Fu Tei Au Road (represented by VP A3) There will be change in site configuration, areas of the development sites and BH. It is predicted that there would be **Intermediate** change in magnitude of impact on the local VPs identified in the Approved EIA report.
FLN Site 5 Provision of bus depot and public heavy goods vehicular park BH Restriction of 60mPD	Affected VP: Existing Settlements around Sheung Shui Wa Shan (represented by VP A1), Northern Bank of Ng Tung River near Sheung Shui Wa Shan (represented by VP A2) & Sheung Shui Wai Area (represented by VP A4) There will be change in site configuration, areas of the development sites and BH. It is predicted that there would be **Intermediate** change in magnitude of impact on the local VPs identified in the Approved EIA report.
FLN Site 6 Provision of 4 public housing and 1 regional open space BH Restriction of 95mPD at the north and 110mPD at the south of Site 6 A sewage pumping station with BH restriction of 15mPD will be built next to the new sports centre and refuse collection point in the southwestern portion of Site 5.	Affected VP: Existing Settlements around Sheung Shui Wa Shan (represented by VP A1) & Sheung Shui Wai Area (represented by VP A4) There will be change in site configuration, areas of the housing sites and BH. It is predicted that there would be **Large** change in magnitude of impact on the local VP representing Sheung Shui Wai Area identified in the Approved EIA report. Based on both vertical and horizontal field of view, the proposed building group that is approximately 95 to 110 mPD tall and 200 m wide and about 0.2 km from the VP representing Sheung Shui Wai Area is considered as a visually evident and potentially noticeable impact to the VP.

Remarks:
@ Actual number of towers of for public housing listed in this table is subject to onward design development.

Table 13 Impact Significance on the Affected VPs during the Construction & Operation Phase of Sites 4 to 6

Affected VP	Magnitude of change (Large/ Intermediate/ Small/ Negligible)		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified in the EIA & ER report		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant) identified based on the proposed development scheme in P&E report 2021	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Cottage Area Lining Fu Tei Au Road (represented by VP A3)	Intermediate	Intermediate	Moderate	Moderate	Moderate	Moderate
	The natural view of existing patches of woodland and vegetation might be affected due to the removal of all the Fu Tei Au Agricultural Land. During earthworks construction, the construction machinery and scaffolding might be visible without the existing green buffer. However, the low-rise structures of Sheung Shui/Fanling logistic facilities area might be screened by the plantation views of the proposed new open space and planted trees along the river banks and the nearby local open space. It is anticipated that on average small changes will be experienced during both construction and operation and the magnitude of change will be Small. The area is expected to experience **Moderate** visual impact before any mitigation.					
Existing Settlements around Sheung Shui Wa Shan (represented by VP A1)	Large	Large	Substantial	Substantial	Substantial	Substantial
	Addition of bus depot building blocks on the other side of the river may be visible from the VP. The BH Restriction will be at a maximum of 60mPD and those buildings are likely to be visible to those settlements facing south at Site 5. Significant earthworks will be visible during construction and the main impacts at this stage will be from construction machinery and scaffolding and then the built structures as they become visible. It is anticipated that the magnitude of change will be **Large** during both construction and operation. However, the conversation of the open space might provide screening among the buildings. The site is expected to experience **Substantial** visual impact before any mitigation.					
Sheung Shui Wai Area (represented by VP A4)	Large	Large	Moderate	Moderate	Moderate/ Substantial	Moderate/ Substantial
	Tops of proposed 95-110mPD height of 4 nos. residential building blocks in the northwest portion of Site 6 will be visible above the existing building/vegetation line. Visual impacts from the construction phase will mainly be increased by nearby site formation works, scaffolding, and installation/operation of construction machinery. A **Large** magnitude of change in view is predicted for these higher-level VPs (e.g. at the top of the 3-storey village houses) that have views looking towards FLN NDA with Cham Shan/Wa Shan ranges as the background. From the ground level, those views might be partially blocked by other buildings or mature vegetation in the area. Overall the area is expected to experience **Moderate/Substantial** visual impact before any mitigation.					

Table 14 Significance of Visual Impacts for FLN NDA

VP Code (Code for FLN)	Name	VP Category (Strategic/ District/ Local)	VP Type	VP Sensitivity (High/ Medium/ Low)	Magnitude of Change (Large/ Intermediate/ Small/ Negligible)		Impact Significance BEFORE Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		Recommended Mitigation Measures		Residual Impact Significance UPON Mitigation (Substantial/ Moderate/ Slight/ Insignificant)		
					Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation Day 1	Operation Year 10
A1	Northern Hillside overlooking Hung Kiu San Tsuen (Including Existing Settlements around Sheung Shui Wa Shan)	Local	Residential - Low Rise	High	Large	Large	Substantial	Substantial	MM2, MM4, M11, MM16, MM17	MM2, MM4, MM5, MM6, MM7, MM8 MM9, MM11, MM12, MM14, MM17	Moderate	Moderate	Slight
A2	Northern Bank of Ng Tung River near Sheung Shui Wa Shan	Local	Residential - Low Rise	High	Large	Large	Substantial	Substantial	MM2, MM4, M11, MM16, MM17	MM2, MM4, MM5, MM6, MM7, MM8 MM9, MM11, MM12, MM14, MM17	Moderate	Moderate	Slight
A3	Eastern Bank of Intersection between Ng Tung River and Shek Sheung River (Including Cottage Area Lining Fu Tei Au Road)	Local	Residential - Low Rise	Medium	Small	Small	Moderate	Moderate	MM2, MM4, M11, MM16, MM17	MM2, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11, MM17	Moderate	Slight	Slight
A4	Mun Hau Tsuen (Including Sheung Shui Wai Area)	Local	Residential - High Rise	High	Large	Large	Moderate/ Substantial	Moderate/ Substantial	MM2, MM4, M11, MM16, MM17	MM2, MM4, MM5, MM7, MM9, MM11, MM12, MM17	Moderate	Slight	Slight
A5	Ling Shan Road	Local	Residential - Low Rise	Medium	Intermediate	Intermediate	Moderate	Moderate	MM2, MM4, MM11, MM16, MM17	MM2, MM4, MM5, MM7, MM9, MM10, MM11, MM12, MM17	Moderate	Moderate	Slight
A6	Opposite from Society for Indigenous Learning	Local	Regional Recreational	Medium	Intermediate	Small	Slight	Slight	MM2, MM4, MM11, MM16, MM17	MM2, MM4, MM5, MM7, MM9, MM10, MM11, MM12, MM17	Slight	Slight	Insignificant
F3	Tsung Shan, High Hill	Strategic	Recreational	Medium	Intermediate	Intermediate	Moderate	Moderate	MM2, MM4, MM17	MM2, MM4, MM5, MM7, MM9, MM10, MM11, MM12, MM17	Moderate	Slight	Slight
F5	Kan Lung Tsuen Area	Local	Residential - Low Rise	High	Large	Large	Moderate	Moderate	MM2, MM4, M11, MM16, MM17	MM2, MM4, MM5, MM7, MM9, MM11, MM12, MM14.3, MM17	Moderate	Slight	Slight
F23	Sheung Shui Fire Station	Local	Recreational (& Occupational & Travelling)	Low	Intermediate	Intermediate	Moderate	Moderate	MM2, MM4, M11, MM17	MM2, MM4, MM5, MM7, MM9, MM11, MM12, MM17	Moderate	Slight	Slight

8.3 Visual Appraisal of Specified Viewpoints

8.3.1 The residential included in VPs A1, A2, A3 and A4 are expected to remain **Moderately** affected at construction, as the proposed land use changes and associated BH changes at Sites 4, 5 and 6 only slightly alter the views from these VPs. In terms of visual character, there is limited difference between the baseline G/IC land uses and the proposed logistics and transport related land uses at Sites 4 and 5. The more noticeable change is due to the building height and mass change, causing noticeably more visual blockage to pedestrians and lower floor residentials in VPs A1, A2 and A3. VP A3 retains views to low-lying conservation area and ponds to the west and the mountains to the north despite the land use change at Site 4. The extent of visual blockage experienced by VP A1 from developments at Site 5 is limited due to the relatively low BH of 60 mPD. VP A2 has fairly contained views and so for viewers at lower levels. Views are either partially or fully blocked by buildings. Some of the very high rise residentials such as the public housing developments in B2-7, Site A1 and Site 6 may be more noticeable above the vegetation line.

8.3.2 From the nearby VP A3, Site 5 is already obscured by tree cover. VP A4 is farther back from the river than VP A3, and as such would experience even less change in visual impact from the land use changes at Sites 4 and 5. Rather, VP A4 is expected to be relatively affected by the changes at Site 6, where views of facilities for the environmentally friendly transport system is replaced by a high rise (up to 110mPD) urban area. Although views north to the foothills of Cham Shan will remain unaffected, the mass of new high rise buildings in the NDA nearby will generally dominate the views. The significance of the residual impacts for these views of VPs A1 to A4 are considered to reduce to **Slight** / **Moderate** at day 1 of operation, and **Slight** by year 10 when all soft landscaping measures have had time to mature and confer their full effect.

8.3.3 It is anticipated that the impact significance before mitigation in VP A5 will be **Moderate** during both the construction and operations. Since the residents in this area are mainly living in low rise village houses, their views are partly blocked by the proposed high rise residential buildings and only the houses at the northeast of the villages will have less obstructed view towards the NDA. However, the roadside tree planting will screen much of these views at low levels. Sites A7 and B7 are designated to incorporate a non-building area, which will allow for further planting. Maintain adequate visual corridors. It is expected that residual impact will be **Moderate** at day 1 of operation, and **Slight** by year 10 when all soft landscaping measures are fully implemented and realized.

8.3.4 VP A6 is expected to experience **Moderate** impact at construction stage from perspective of magnitude of change. For residents living in sites A4 and B2, buildings in site B1 may be more noticeable above the vegetation line at high level. Visual impact during construction is also due to road works associated with the Fanling Bypass Western Section. Nevertheless, the low rise buildings are noticeable and visible only from this VP, which do not cause any significant changes in overall visual impact. Glimpses of these new buildings in site B1 (up to 55mPD and 3 storeys respectively) may be hardly visible between gaps of the planted roadside screening trees. VP A6 is thus expected to experience **Slight** residual visual impacts at day 1 of operation, and **Slight** by year 10 when all soft landscaping measures have had time to mature and confer their full effect.

8.3.5 VPs F3 and F23 are both recreational VPs that are expected to experience **Moderate** impact from the NDA, yet the level of impact is also hardly affected by the proposed changes. F23 is closer to the NDA but of low sensitivity. As it is on a higher elevation, the topography and existing vegetation obscures the lower portions of buildings at Sites A1 to A5 and at Sites B2 to B4. The BH changes are barely perceptible at this distance, especially as the relatively significant changes (e.g. Sites A1 and A2, with 26.7% BH intensification) are obscured (e.g. by Sites B2-7 and A3, with ~10% BH intensification). Despite building layout changes, the profiles of the building masses are not altered significantly, and gaps are retained between developments. F3 is a vantage point of medium sensitivity overlooking sites A6 to A9 and B5 to B11 from a hiking trail, much farther from the site. At the distance, the changes, including the small BH increase of 3 storeys for the G/IC sites C2-5 and C2-6, are hardly perceptible; the BH changes of up to 30% do not noticeably alter the character or massing of developments visible from the VP, and the wide open view towards FLN NDA is preserved. F3 and F23 are expected to experience **Slight** residual visual impacts at operation day 1, and upon implementation of mitigation measures the impact is expected to remain **Slight** at year 10 of operation.

8.3.6 The remaining VP F5 has high sensitivity and was predicted to experience **Moderate** visual impact during construction. Areas for Public Housing Development under approved Application No. A/FLN/28 and A8 as well as parts of the Fanling bypass are visible behind the treeline. However, the proposed BH changes visible from this VP are hardly noticeable and do not cause any significant changes in visual impact. The expected impact will reduce to **Slight** on day 1 and **Slight** at year 10 of operation.

8.3.7 Based on the assessments above and photomontages provided in **Appendix C**, the potential changes in visual impacts due to the changes proposed for BH intensification in the P&E Report 2021 are summarized as follows:

Proposed changes	Potential Impacts on VPs
Changes in building blocks layout & BHs at Site 4, 5 and 6. (Additional 4 public housing in Site 6 at 95-110mPD, intensified BHs in Site 4 at 100mPD and Site 5 at 60mPD). There was also a slight increase in the total building block numbers & change in BH in rest of the FLN NDA. The residential building block profiles would require BH increase by 5-30mPD, the proposed change was considered as minor.	The visual composition of the proposed Development was still visually compatible with the existing and planned urban context of the area. BH will be stepped down from the inland towards the riverfront and a lower building profile will be adopted for developments to the north near the Ng Tung River, with taller building blocks to the south and east. Other than at A1, A2, A4 and F5, there are moderate to slight changes in magnitude of impact on all VPs.

8.3.8 According to the visual appraisal of the VP above, the overall visual changes of the proposal is considered as slight and it would not result in significant visual impact to the surrounding. The increased BH and adjustment on building configuration are illustrated with photomontages in **Appendix C**.

8.3.9 Effect on Visual Composition: The Developments with the proposed land use change and minor relaxation of plot ratio and BH is considered visually compatible with the existing and planned urban developments of the area in term of scale and height. The stepped BH is still respected at the FLN NDA. BH will be stepped down from the inland towards the riverfront and a relatively lower building profile will be adopted for developments to the north near the Ng Tung River.

8.3.10 Effect on Visual Obstruction and Visual Permeability: The change in BH and building layout are considered slight and would result in minor obstruction of the VP . The only relatively noticeable increases in BH are due to the land use changes for Sites 4 and 6. The potential obstruction from increasing BH at Site 4 to 100mPD only applies to The Sheung Shui Wai Area, and the impact is limited across the >40m width of the river; Site 6 is also stepped down towards the river with sufficient spacing from the adjacent developments to retain visual permeability. Overall, the change in visual permeability shall be barely perceivable across the majority of the site.

8.3.11 Effect on Visual Resources: There would be no additional impact upon the visual resources as compared with the proposed development under the Base Case Scenario. The overall townscape of FLN NDA would remain unchanged.

8.3.12 Impact on VPs: Other than at A1, A2, A4 and F5, there are moderate to slight changes in magnitude of impact on all VPs.

8.4 Evaluation of Overall Visual and Landscape Impact of the Proposed Changes

8.4.1 Bearing in mind that the purpose of this report is to assess the proposed changes against the planned development of the Base Case Scenario, the primary difference between the two scenarios lies in modification of building arrangement, form and height.

8.4.2 The change in overall visual impact is considered slight as demonstrated in the assessment above and photomontages provided in **Appendix C**. The following mitigations will be adopted to enhance the landscape and visual amenity and minimize any potential adverse visual impacts. The proposed mitigation measures are further elaborated below in **Table 15** to illustrate how they shall be actualized in specificity, providing more details as to how they can be applied in FLN NDA. In particular, measures marked with asterisk (*) in **Table 15** are regarded as visual mitigation measures.

Table 15 Visual Mitigation Measures during Construction and Operation Phase

ID	Description (sections, figures and specification abbreviations shall refer to the approved EIA Report)
MM1	Minimum Topographical Change To minimize landscape and visual impacts, the vertical and horizontal alignment of the at-grade road construction works should be optimised to reduce topographical/landform changes, as well as reduce land take and interference with natural terrain. For areas that require cut and fill, earthworks and engineered slopes should be designed to have naturalistic forms to integrate with surrounding landscape to which the areas with topographic modifications remain aesthetically and environmentally compatible with the natural settings as far as possible.
MM2 *	Detailed Design - Visual The construction and operational footprint of the road infrastructure components should be kept to a practical minimum. The form, textures, finishes and colours of the proposed road structures such as viaducts, footbridges and noise barriers should aim to be compatible with the existing surroundings. The engineering design should be refined to reduce visual bulkiness and incorporate aesthetically pleasing surface treatments to promote visual amenity. Landscape treatments should be provided as far as possible on said structures to ensure a naturalistic appeal that provides not only visual cohesion with surrounding landscapes but also environmental benefits that respond to the existing ecological networks in FLN NDA. Guidelines on Tree Transplanting by DevB and final locations of transplanted trees should be agreed prior to commencement of the work. For example, dense high rise locations in FLN NDA such as those in Areas 15-18 as seen from the F5 VP. Building facades and arrangements should be broken down with form, textures, finishes and colours aim to be compatible with the existing surroundings to reduce visual bulkiness and incorporate aesthetically pleasing surface treatments to promote visual amenity.
MM3	Open Space Provision In planning the revised RODP, impacts to most open space/recreational areas have been avoided. To help alleviate loss of open space unavoidably affected by the Project, the principles adopted in the RODP planning shall ensure that public open space systems are incorporated and improve landscape and visual amenity. In FLN NDA, Area 12 is proposed as a Central Park and areas along the northern and southern banks of Ng Tung River will be developed into continuous promenades with some Riverside Parks at a number of Sites (e.g. southeast of Area 3, Area 6, and the easternmost portion of Area 7). The public open space within the RODPs will enhance the visual amenity of the area and improve the overall landscape character as well as ensuring no overall loss of open space/ recreational LR. On top of that, open space provision should follow and make reference to the landscape design principles and methodologies as presented in the previous reports of Remaining Phase on FLN NDAs such as the Inception Report and subsequent design review reports, ensuring design cohesion in the overall regional contexts of landscaping and the natural environment. The quality of open space provisions shall also incorporate innovations as far as possible to actively engage in the larger green and smart city initiatives particularly the implementations of various blue-green infrastructure such as rain gardens and bioswales, playing a vital role in providing diverse programs for various users as well as integrate and contribute to the local ecological systems.
MM4	Tree Protection & Preservation To limit visual impact on existing greenery, existing trees to be retained within the Project Site should be carefully protected during construction and shall make reference to the latest edition of Guidelines on Tree Risk Assessment and Management Arrangement by DevB. Detailed Tree Protection Specification shall be provided in the Contract Specification. Tree risk assessment shall be undertaken in accordance with “Guidelines on Tree Risk Assessment and Management Arrangement” by DevB.
MM5	Tree Transplantation To limit visual impact on existing greenery, trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with DevB TCW 6/2015 and 4/2020 and Guidelines on Tree Transplanting by DevB and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD

ID	Description (sections, figures and specification abbreviations shall refer to the approved EIA Report)
	HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.
MM6	Slope Landscaping To minimise landscape and visual impacts, site formation has been reduced as far as possible to avoid substantial slope cutting. Slope formations shall make consideration to the potential extents of landscape planting in terms of their slope gradients, forms and orientations such that these efforts can be made as far as possible and practical. All slope landscaping works should comply with GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes where woodland tree seedlings and/or shrubs should be planted and prioritized for establishing plant communities where feasible beyond the implementation of hydroseeding.
MM7	Compensatory Planting Compensatory/new tree planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory/new trees shall be determined and agreed separately with Government during the Tree Felling Removal Application process under DevB TCW 4/2020. Compensatory/new tree planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots. Particularly, compensatory/new tree planting location shall make reference to the corresponding tree felling and the concerned lots, meaning the compensatory/new tree planting quantities and locations shall be determined and distributed by the quantities and locations of trees to be felled in their specific lots extents. Each lot and land use extents including infrastructure works shall provide the specific quantities of compensatory/new trees according to the corresponding amount of trees to be felled within their respective boundaries. Tree planting shall make reference to the latest "Right Tree, Right Place" guidelines by DevB where appropriate especially the Street Tree Selection Guide for street tree planting. In addition, compensatory planting for shrubs should be considered in suitable locations. Native species such as *Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica,* and *Rhododendron simsii* are suggested. The location of compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes including roadside planting, as well as the open areas within development lots. Should space allow, the woodland compensatory planting areas (see MM8) may also be able to accommodate some standard tree and shrub compensation. Besides, compensatory planting for shrubs and groundcovers shall be considered where possible to enhance not only visual amenities but more importantly, support the local ecological systems and biodiversity to ensure establishments of resilient plant communities. Planting variations shall incorporate the 10-20-30 rule of plant diversity in the Street Tree Selection Guide under "Complementary Vegetation Community Mix" wherever possible.
MM8	Woodland Compensatory Planting Specific woodland compensatory planting is proposed to make up for the visual and physical loss of any areas of quality woodland that are unavoidably affected by the Project. The compensatory woodland planting will principally be within habitats of lower value such as upland grassland. The proposed locations are identified, for example, along Fanling Bypass; and a small area in the northern FLN NDA, as indicated on the Landscape Mitigation Plans in Figures 12.16.0-5 for FLN NDA in the approved EIA (further detailed zoom in Landscape Mitigation Plans are provided in DP Packages 12A-D of the approved EIA). The total area allocated for compensatory woodland planting is more than 16 ha combining both KTN and FLN NDAs. This provision allows in part for the fact that it will take some time for the compensatory planting to achieve the landscape and ecological function and value of the area to be lost. In addition, it allows for the fact that not all of the areas identified for planting will prove to be plantable, by virtue of topography and ground conditions and, especially, because though the areas identified are largely grassland it is inevitable that these areas will already support some patches of trees and shrubs which would be inappropriate for further planting. The intention of the compensatory woodland will be to recreate areas of quality woodland, not necessarily to compensate for loss of trees on a like for like basis. Native tree species in line with the visual character of the site are suggested for planting, including *Ailanthus fordii, Bischofia javanica, Castanopsis fissa, Celtis sinensis, Cinnamomum burmannii, Cinnamomum camphora, Xanthoxlyum avicennae, Liquidambar formosana, Sapium discolor, Schefflera heptaphylla* and *Ilex rotunda.* In addition some understory vegetation may be planted including shrubs such as *Atalantia buxifolia, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma malabathricum, Melastoma dodecandrum, Rhodomyrtus tomentosa, Rhaphiolepis indica,* and *Rhododendron simsii.*
MM9	Vertical Greening Where space and appropriate planting conditions allow (i.e. where suitable depth of planting medium is possible, maintenance access and appropriate/sufficient level of light penetration to ground level with respect to selected planting species), climbing plants should be considered to grow up vertical surfaces such as viaduct piers or noise barriers. The planting once established will assist in breaking up the visual impact of uniform engineered structures and surfaces. Climber planting shall ensure provision of species diversity to give a naturalistic appeal with variations.
MM10	Green Roof Roof greening where appropriate should be established on proposed buildings to reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VPs at high levels. Green roofs can also provide attractive landscaping and greening, accessibility to green roofs should also be considered where appropriate to allow users to enjoy. CIBSE HK Branch's Technical Guidelines for Green Roof Systems in Hong Kong

ID	Description (sections, figures and specification abbreviations shall refer to the approved EIA Report)
	(2011) and ArchSD Study on Green Roof Application in Hong Kong (2007) should be referred to when considering and developing green roofs. These documents provide further details including information regarding structural loading, design, and maintenance etc. considerations as well as providing information on what types of plants might be suitable. For example, dense high-rise locations in FLN NDA such as those in Areas 15-18 as seen from VP F5.
MM11	Screen Planting Tall screen/buffer trees and shrubs should be planted to assist in screening proposed road corridors and associated above ground structures such as elevated road sections and engineered embankments. This measure may additionally form part of the compensatory/new tree planting and will improve compatibility with the surrounding environment and create a pleasant pedestrian environment. Roadside planting shall ensure provision of rich planting communities that comprises of trees, shrubs and groundcovers where possible and shall integrate with green and smart city initiatives such as incorporation of blue-green infrastructure. Roadside tree planting shall make reference to the "Right Tree, Right Place" guidelines by DevB such as the Street Tree Selection Guide. With regards to site constraints and incorporation of common utility trench (CUT), additional measures may be considered to ensure the provision of ample soil in the underground space for planters and allow healthy growth of vegetations. Priority should be given for the provision of continuous at-grade roadside verge planning zone in the design of the roadside planting zone.
MM12	Road Greening For viaducts, soft landscaping should be provided to soften the hard, straight edges (for climbers used to cover the vertical, hard surfaces of the piers – see MM9 Vertical Greening) and shade tolerant plants should be planted, where light is insufficient, to improve aesthetic value of areas under viaducts. Both at grade and use of planters should be considered for the soft landscaping of viaducts, taking into account the preference to minimise the overall viaduct bulk and integrate architectural forms and textural finishes which improve aesthetics. At-grade road planting should be considered along central dividers and on road islands e.g. in the middle of roundabouts. (Roadside planting i.e. at the road edge and not in the central divider or road island, is considered part of MM11 Screen Planting). HQ/GN/15 - Guidelines for Greening Works along Highways should be referred to for greening of highways specifically and Development Bureau TCW No. 1/2018 – Soft Landscape Provisions for Highway Structures. Road greening shall ensure provision of rich planting communities that comprises of trees, shrubs and groundcovers where possible and shall integrate with green and smart city initiatives such as incorporation of blue-green infrastructure. Road tree planting along central dividers and on road islands also shall make reference to the "Right Tree, Right Place" guidelines by DevB such as the Street Tree Selection Guide. With regards to site constraints and incorporation of common utility trench (CUT), additional measures may be considered to ensure the provision of ample soil in the underground space for planters and allow healthy growth of vegetations.
MM13	Marsh/Wetland Compensation

ID	Description (sections, figures and specification abbreviations shall refer to the approved EIA Report)
	Direct loss of marsh and wetland areas caused by the DPs will be mitigated by compensatory habitat and management in the proposed Long Valley Nature Park (LVNP) where there will be some addition of wetland areas. Wetland compensation and preservation shall also be considered within working boundaries in the context of FLN NDA such as the wetlands in Area 2, Area 3, and the feature meanders adjacent to Area 6. Reprovisioning of the mitigation wetland in nearby areas adjacent to the river edge or nearby retaining meanders shall be considered with efforts to minimize loss of the patch where possible to maintain biodiversity and ecological values of the surrounding environment, as well as to preserve the wetland-associated visual characteristics within the landscape.
MM15	Pond Replacement To help compensate for ponds unavoidably affected by the Project, the principles adopted in the RODP design ensure that new ponds are incorporated. In planning the revised RODP, impacts to most ponds have been avoided by exclusion from the NDA or suitable zoning that allow for the ponds to be protected e.g. Agricultural zoning in Area 2 and the western portion of Area 3, in the west of FLN NDA. To help alleviate the loss of ponds unavoidably affected by the Project, the principles adopted in the RODP design ensure that new ponds are incorporated and also improve landscape and visual amenity.
MM16*	Screen Hoarding Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders with public accessible routes and/or is close to VPs, to screen undesirable views of the works site. It is proposed that the screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence.
MM17	Light Control Construction day and night-time lighting should be controlled to minimise glare impact to adjacent VPs during the construction stage. Shrouded or directional lighting should be considered where appropriate as a general good practice construction measure but especially where works are in close proximity to residential VPs.

8.4.3 Appropriate measures as specified in the approved EM&A Manual shall also be applied to ensure that mitigation measures are well implemented so that their effects sustain into the long term. They are briefly summarised below:

8.4.4 Audit should be carried out during site clearance when proposed tree felling and transplantation may occur. To ensure quality planting is used for successful implementation, stock inspections before transportation to Project site should be carried out by competent personnel such as a certified. Site inspections should be undertaken at least once every two weeks during the construction period by a Registered Landscape Architect (RLA) employed by the Contractor. Innovative landscaping measures such as the blue-green infrastructure mentioned in MM3 should also be closely monitored to ensure appropriate implementation and functions to the design intents. Innovative measures shall be tested to confirm satisfactory performance where appropriate.

8.4.5 For all soft landscaping works including measures involving trees such as transplantation and compensatory/new tree planting, there should be at least a 12 month establishment period which will commence once soft landscaping in an area has been planted. Operational phase auditing will be restricted to the 12 months establishment works of the landscaping proposals, with the appropriate agents taking over the maintenance and monitoring after this period as identified in the EIA Report.

8.4.6 The audit of the compensatory/new planting will also extend during the one year maintenance period carried out preferably by RLA and/or certified arborist, to ensure successful establishment of the compensatory planting.

8.4.7 Mitigation measures were further elaborated on how they shall be applied in the FLN NDA Remaining Phase Works and the subsequent EM&A requirements were also enriched to provide more details on particular landscaping aspects specific to the contexts of FLN NDA Remaining Phase. Supplementary information on the corresponding mitigation measures for existing meanders/ mitigation wetlands (MM13 on Marsh/Wetland Compensation) was provided to minimize and mitigate the impacts. Particularly, reprovisioning of the mitigation wetland in nearby areas adjacent to the river edge or nearby retaining meanders shall be considered with efforts to minimize loss of the patch where possible to maintain biodiversity, ecological values and visual landscape character of the surrounding environment.

9. CONCLUSION

9.1.1 The existing landscape features and general planning considerations have guided the location of FLN NDA. The development of FLN NDA will lead to a fundamental change in the character and extent of the existing views, and change in visual amenity. Medium and long distance views of a rural landscape characterized by low-lying traditional agricultural fields and village areas will be replaced by a large scale, urban area with a strong vertical habit and views of the uplands to the north of the Fanling / Sheung Shui urban area will also be interrupted by the proposed new structures. However, given all the planning considerations and careful implementation of the mitigation measures, most VPs affected by FLN NDA development will experience **Slight** residual visual impacts by year 10 of operation (**Table 14**).

9.1.2 Compared to the baseline, the newly proposed changes in FLN NDA involve the change of land use in Sites 4, 5 and 6 from GIC and Other Uses to Logistic Facilities, Bus Depot and Public Housing. To accommodate the expected population, there will be changes in building layouts and minor relaxation of maximum BH in various areas of the site.

9.1.3 Given the proposed development involves minor land use changes for FLN NDA in an existing rural area, it is inevitable that visual (and some landscape) impacts caused by such development cannot be fully reduced and remain at a certain level at some locations even after implementation of all possible mitigation measures. Nevertheless, most of the landscape impacts can be reduced to slight and insignificant after the implementation and full establishment of mitigation measures. Care has also been taken to conserve the existing agricultural land, ponds, marsh and wetlands by various mitigation measures and minimize adverse impacts on landscape resources and character areas, such as tree protection, preservation and transplantation as well as compensatory planting and screen planting to buffer structures from views etc.

9.1.4 As a result of the development visual changes, other than at A1, A2, A4 and F5, there are moderate to slight changes in magnitude of impact on all VPs. Despite the change, the Residual Impact Significance upon Mitigation at operation year 10 for A1, A3 and A4 is still expected to be Slight. The overall change in BH and building layouts in FLN NDA are considered slight and would result in minor obstruction of the VPs . The only relatively noticeable increases in BH are due to the land use changes for Sites 4 and 6. It is expected that soft landscaping measures such as screen planting, green roof, vertical greening and compensatory planting will all be fully effective by year 10 of operation providing visual relief. Significance Residual Impact will be reduced to moderate or slight. Moreover, some soft landscaping in the open spaces surrounding the residential blocks will be provided by planting significant trees and vegetation, as well as providing a water feature, will also be significant in mitigating the visual impact.

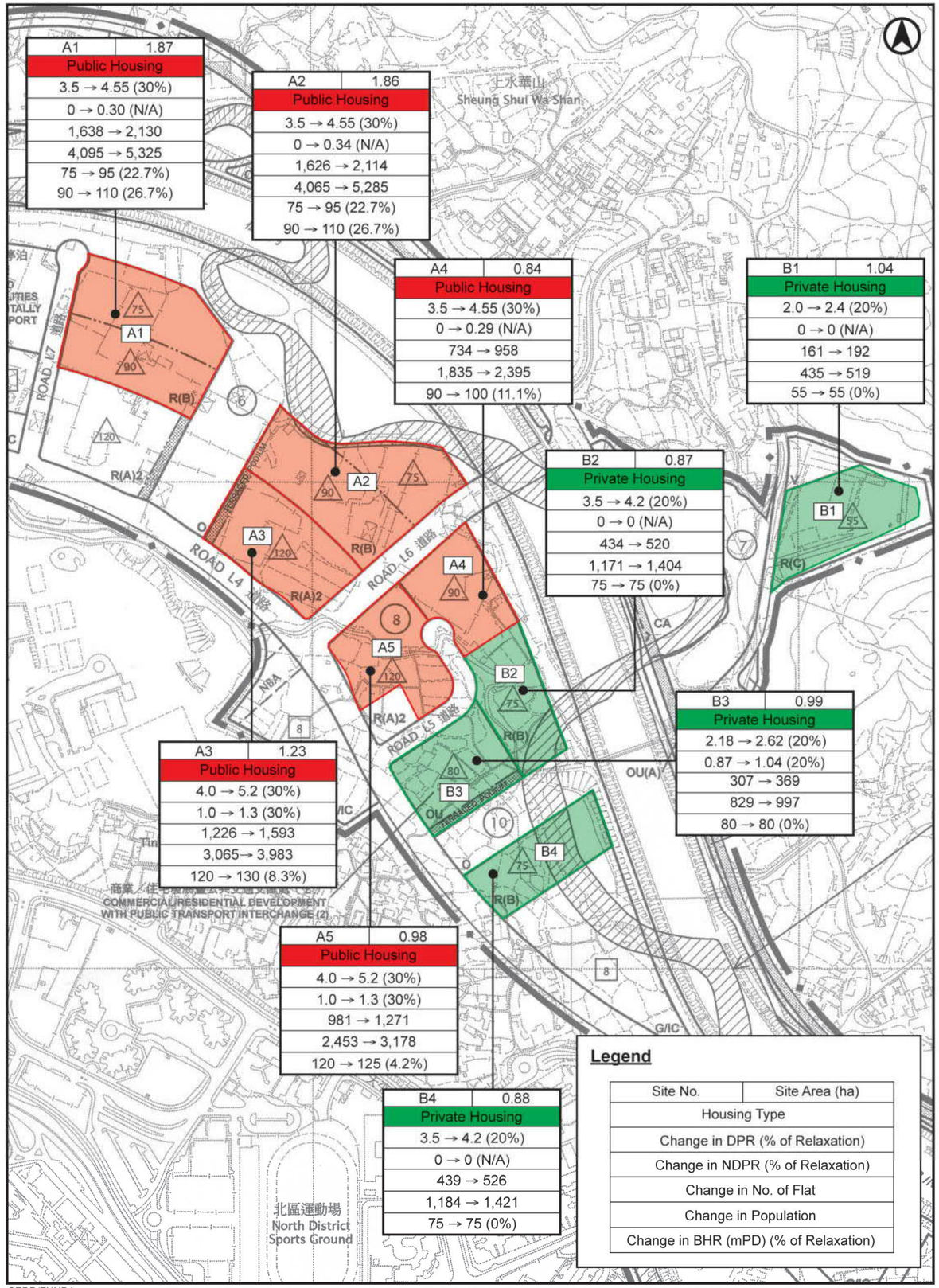
APPENDIX A

LAYOUT PLAN AND PROPOSED RELAXATION OF DEVELOPMENT PARAMETERS – PLOT RATIO AND BUILDING HEIGHT RESTRICTION



CEDD/FNNDA

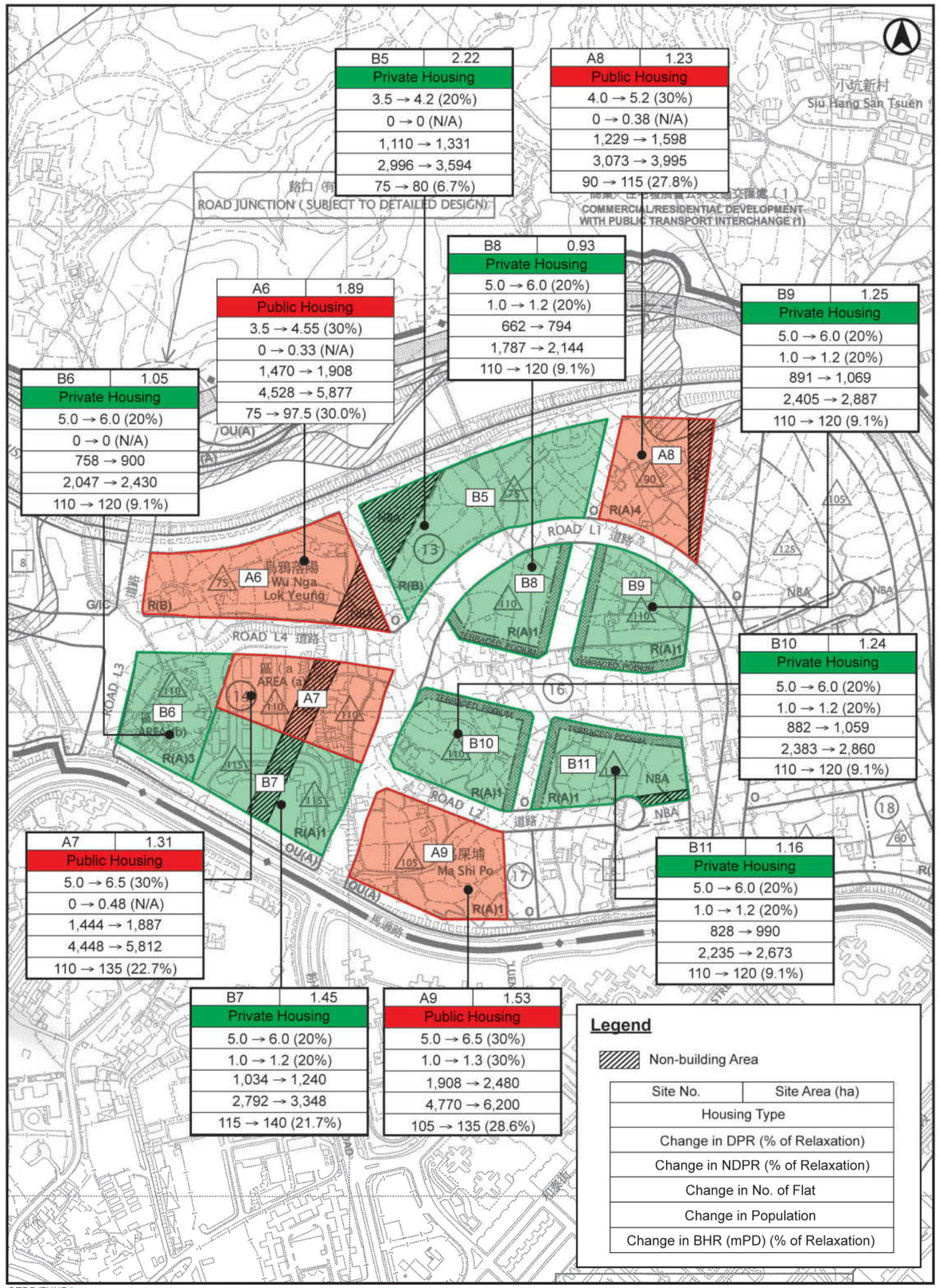
FIGURE 1.1 LOCATIONS OF THE DEVELOPMENT SITES IN FLN NDA REMAINING PHASE



CEDD/FNNDA

FIGURE 3.2.1 BROAD DEVELOPMENT PARAMETERS OF PLANNED HOUSING SITES IN REMAINING PHASE OF FLN NDA (NORTH) AFTER INTENSIFICATION

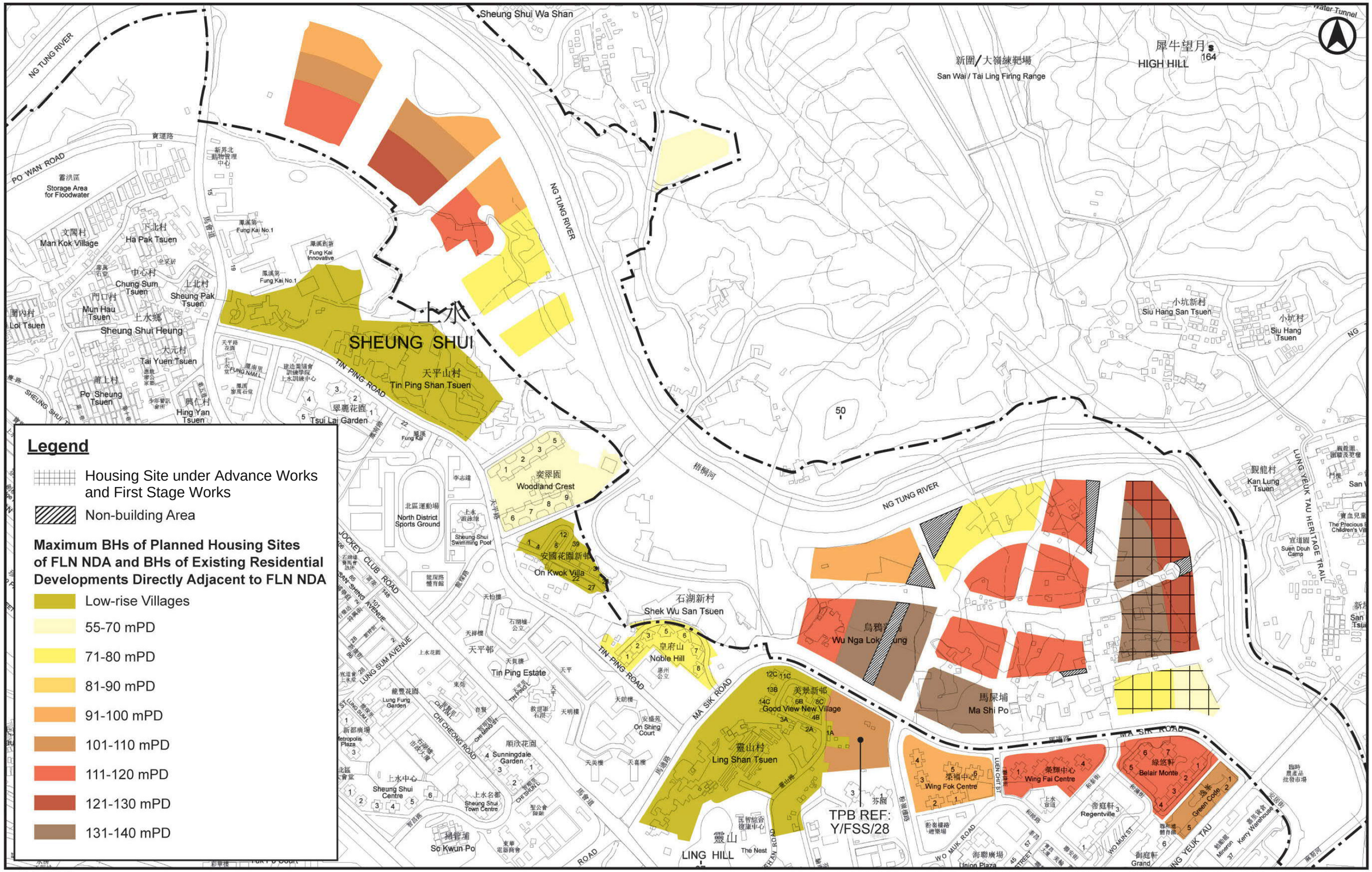
SCALE 1 : 5,000



CEDD/FNNDA

FIGURE 3.2.1 (CONT'D) BROAD DEVELOPMENT PARAMETERS OF PLANNED HOUSING SITES IN REMAINING PHASE OF FLN NDA (SOUTH) AFTER INTENSIFICATION

SCALE 1 : 5,000



CEDD/FNNDA

FIGURE 4.4.1 BUILDING HEIGHT ILLUSTRATION

SCALE 1 : 10,000

APPENDIX B

VISUAL ENVELOPE AND KEY PLAN FOR VIEW POINTS

Millimetres 100 10 0

Legend:

- Viewpoint
- Primary Zone of Visual Influence
- A1 Application Site
- Site 4 OZP Amendment Items

Rev.	Date	Description	By	Chk'd	App'd
-	JUL 22	FIRST ISSUED	BF	DF	DL

Drawing Status: INVESTIGATION

Suitability: -

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Client: CEDD 土木工程拓展署 Civil Engineering and Development Department

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:
VISUAL ENVELOPE AND
KEY PLAN FOR VIEW POINTS

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	BF	CAD	DF	DL
Original Size: A1	Date: JUL 2022	Date: JUL 2022	Date: JUL 2022	Date: JUL 2022

Drawing Number: SK-000254

Revision: -

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User name: YEUN7000 Date:22/7/2022 Time: 17:01:10
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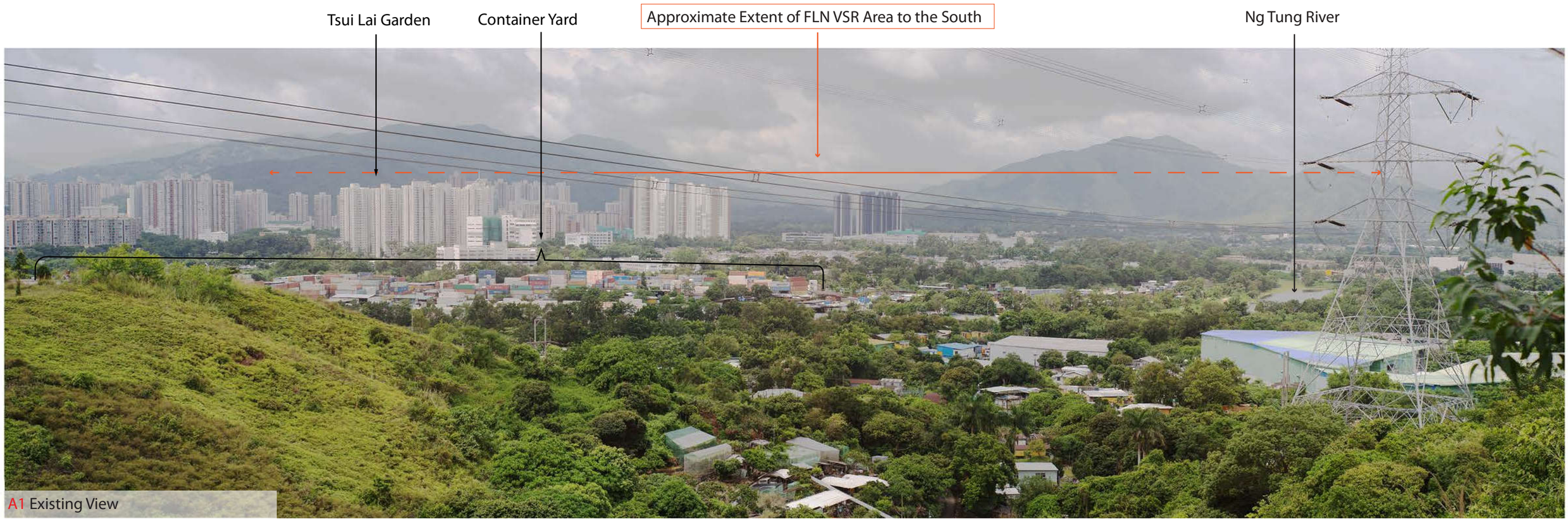
APPENDIX C

PHOTOMONTAGES

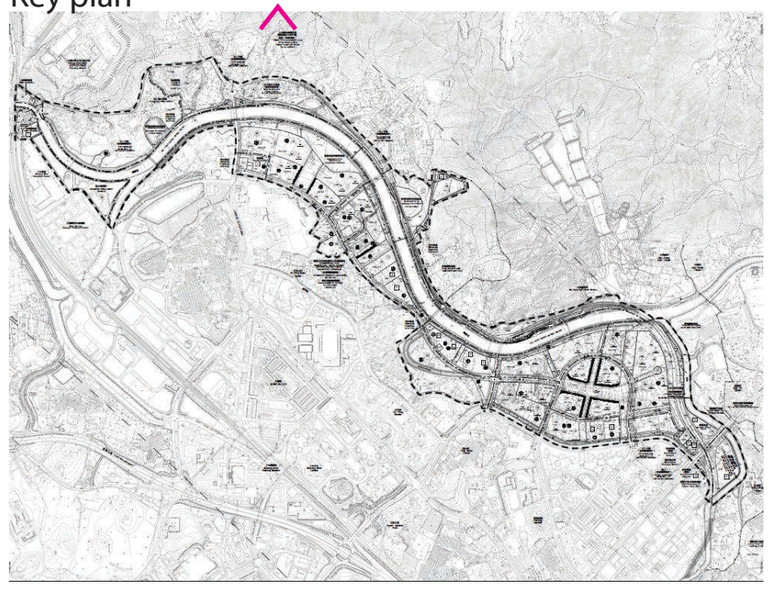
A1 Northern Hillside overlooking Hung Kiu San Tsuen



A1 Existing View

*From higher elevations on Table Hill

Key plan



Under S.16 Submission

Under Proposed OZP Amendments

B3 (80mPD), B2 & B4 (75mPD)
Proposed Private Housing Development

A4 (90mPD) & A5 (120mPD)
Proposed Public Housing Development

A2 (75-90mPD) & A3 (120mPD)
Proposed Public Housing Development

A1 (75-90mPD) & B2-7 (120mPD)
Proposed Public Housing Development

Site 6 (30mPD)
OU (Parking and Operation Facilities for Environmentally Friendly Transport System)

Site 4 & 5 (7 storey)
G/IC (Police Driving and Traffic Training Division and Weapons Training Division)



A1 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Under S.16 Submission

Under Proposed OZP Amendments

B3 (80mPD), B2 & B4 (75mPD)
Proposed Private Housing Development
No Change in Building Height

A4 (100mPD) & A5 (125mPD)
Proposed Public Housing Development
Building Height increased by 5-10m

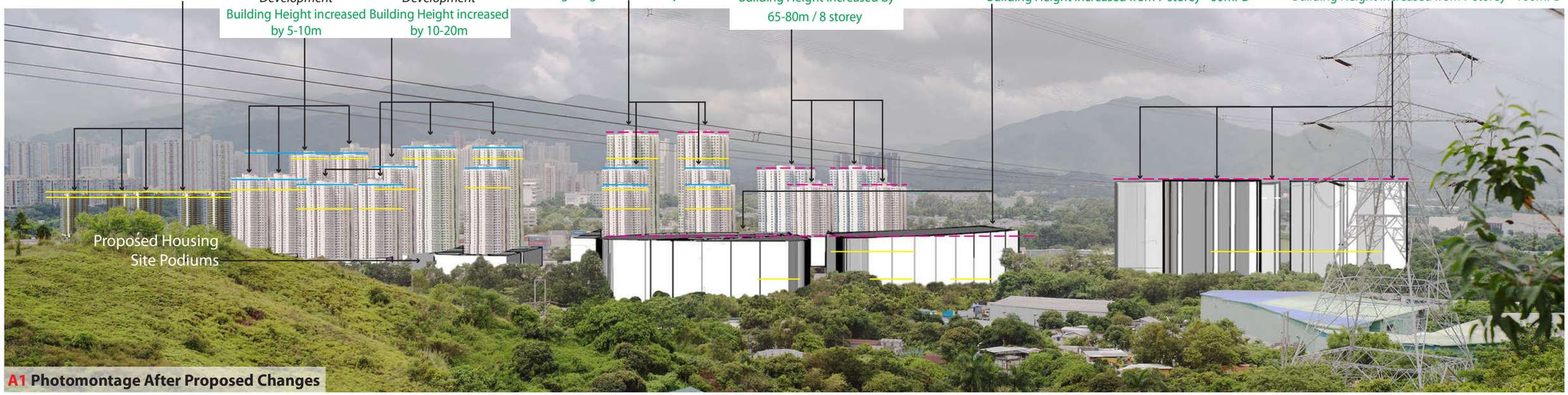
A2 (95-110mPD) & A3 (130mPD)
Proposed Public Housing Development
Building Height increased by 10-20m

A1 (95-110mPD) & B2-7 (145mPD)
Proposed Public Housing Development
Building Height increased by 20-25m

Site 6 (95-110mPD)
Proposed Public Housing Development / Sports Centre
Building Height increased by 65-80m / 8 storey

Site 5 (60mPD)
OU (Proposed Bus Depots & Public Heavy Goods Vehicle Park)
Building Height increased from 7 storey - 60mPD

Site 4 (100mPD)
OU (Proposed Logistics Facilities)
Building Height increased from 7 storey - 100mPD



A1 Photomontage After Proposed Changes

*From higher elevations on Table Hill

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

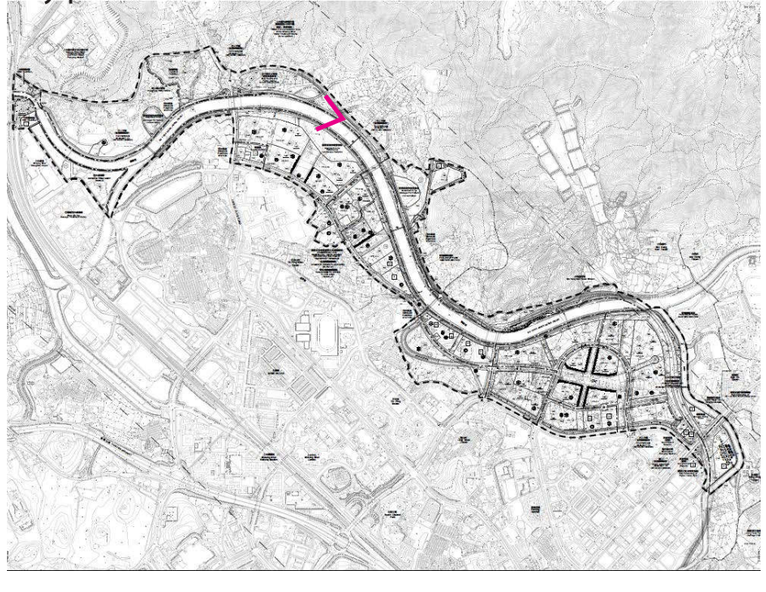
Proposed Building Height Relaxation Under Current Proposed OZP Amendments

A2 Northern Bank of Ng Tung River near Sheung Shui Wa Shan



A2 Existing view

Key plan



Under S.16 Submission

Under Proposed OZP Amendments

A1 (75-90mPD) & B2-7 (120mPD)
Proposed Public Housing Development

Site 6 (30mPD)
OU (Parking and Operation Facilities for Environmentally Friendly Transport System)

Site 4 & 5 (7 storey)
G/IC (Police Driving and Traffic Training Division and Weapons Training Division)



A2 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Under S.16 Submission

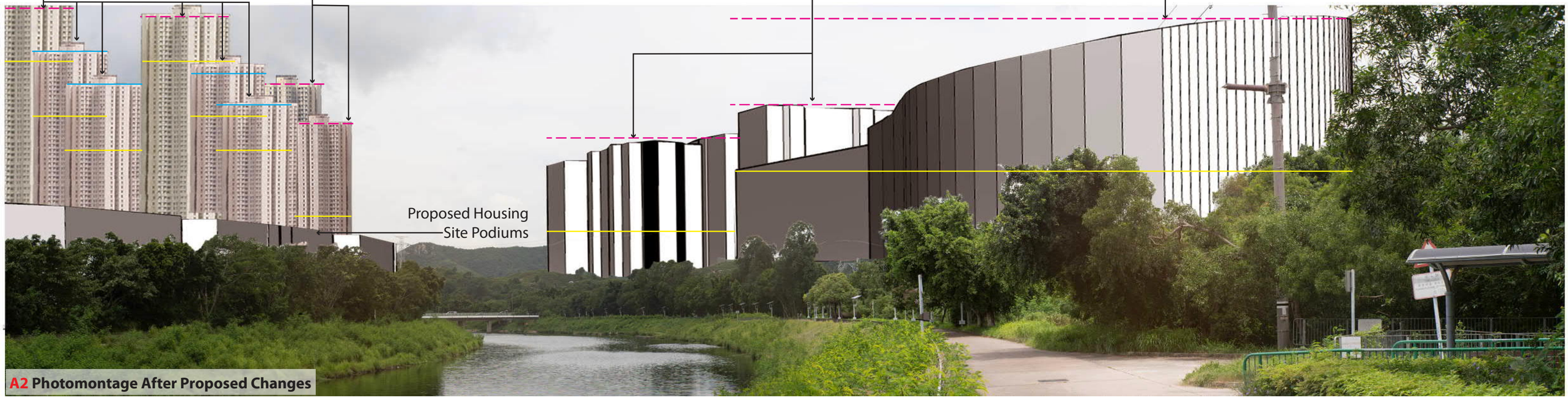
Under Proposed OZP Amendments

A1 (95-110mPD) & B2-7 (145mPD)
Proposed Public Housing Development
Building Height increased by 20-25m

Site 6 (95-110mPD)
Proposed Public Housing Development / Sports Centre
Building Height increased by 65-80m / 8 storey

Site 5 (60mPD)
OU (Proposed Bus Depots & Public Heavy Goods Vehicle Park)
Building Height increased from 7 storey - 60mPD

Site 4 (100mPD)
OU (Proposed Logistics Facilities)
Building Height increased from 7 storey - 100mPD



A2 Photomontage After Proposed Changes

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

Proposed Building Height Relaxation Under Current Proposed OZP Amendments

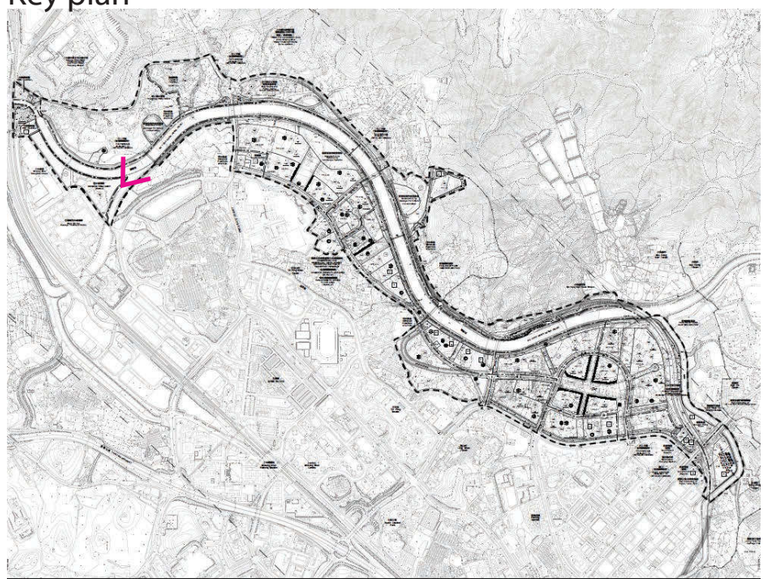
A3 Eastern Bank of Intersection between Ng Tung River and Shek Sheung River



A3 Existing view

*Beside Ng Tung River

Key plan



Under Proposed OZP Amendments

Site 4 (7 storey)
G/IC (Police Driving and Traffic Training Division and Weapons Training Division)

Site 5 (7 storey)
G/IC (Police Driving and Traffic Training Division and Weapons Training Division)

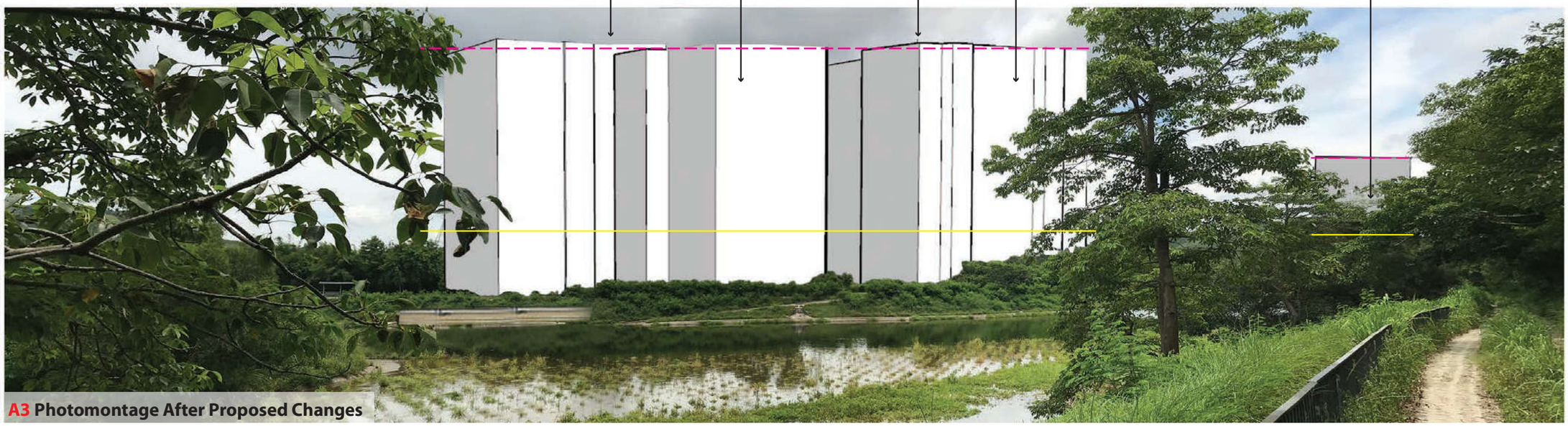


A3 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Under Proposed OZP Amendments

Site 4 (100mPD)
OU (Proposed Logistics Facilities)
Building Height increased from 7 storey - 100mPD

Site 5 (60mPD)
OU (Proposed Bus Depots & Public Heavy Goods Vehicle Park)
Building Height increased from 7 storey - 60mPD



A3 Photomontage After Proposed Changes

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

Proposed Building Height Relaxation Under Current Proposed OZP Amendments

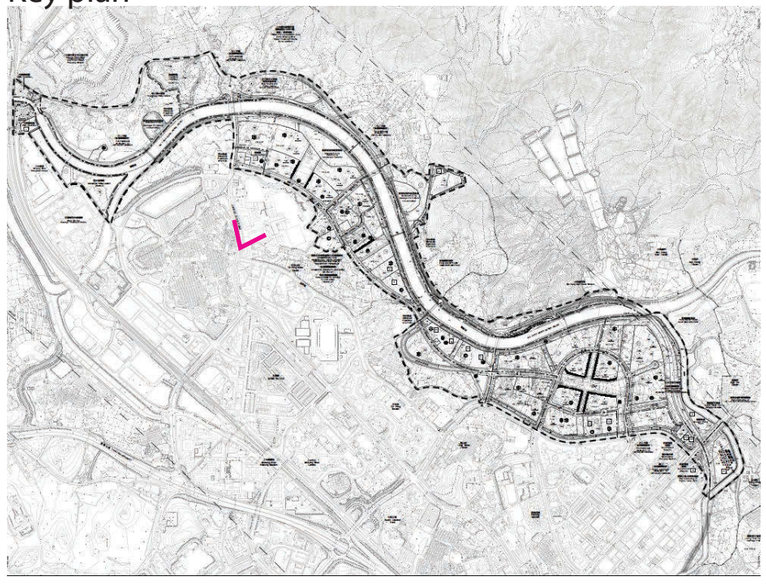
A4 Mun Hau Tsuen

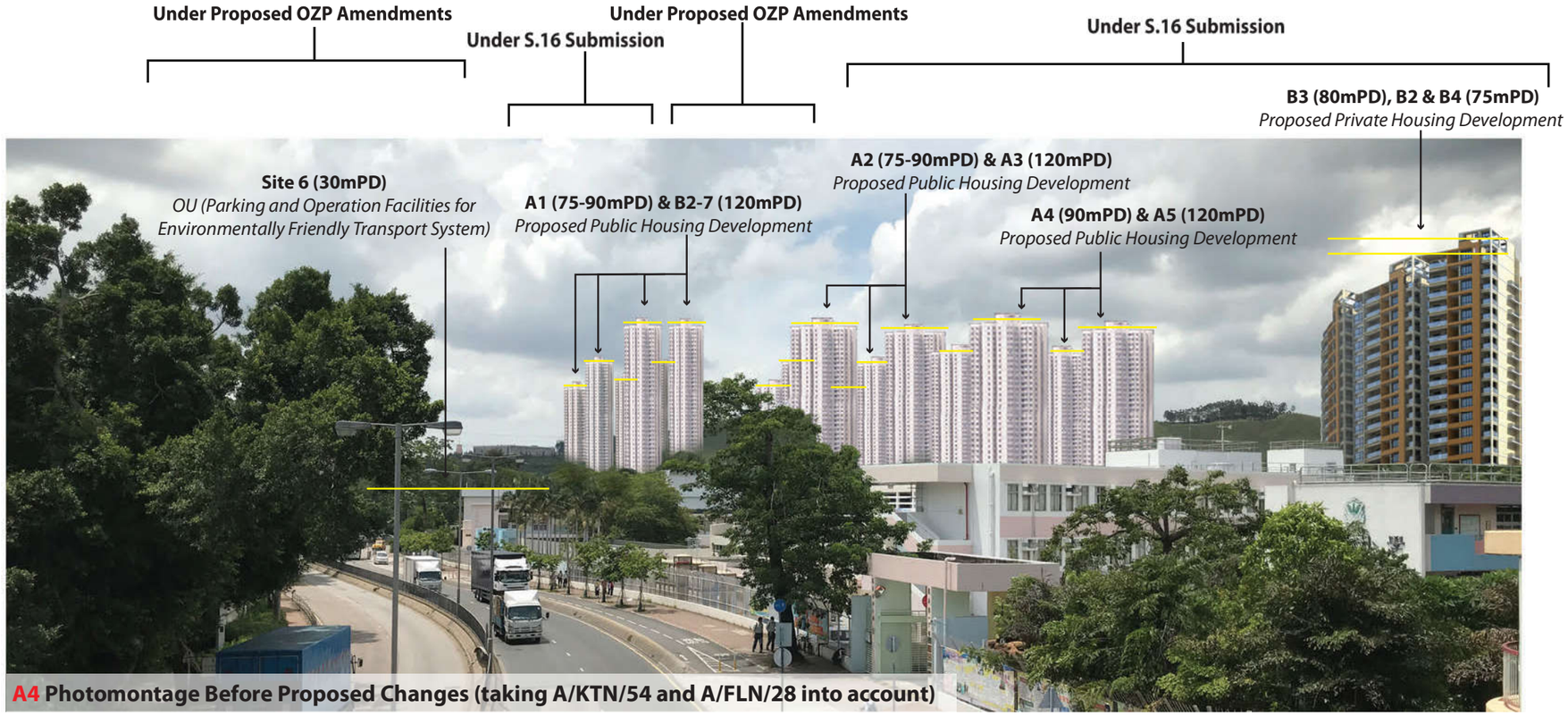


A4 Existing view

* From higher elevations on a pedestrian footbrige

Key plan





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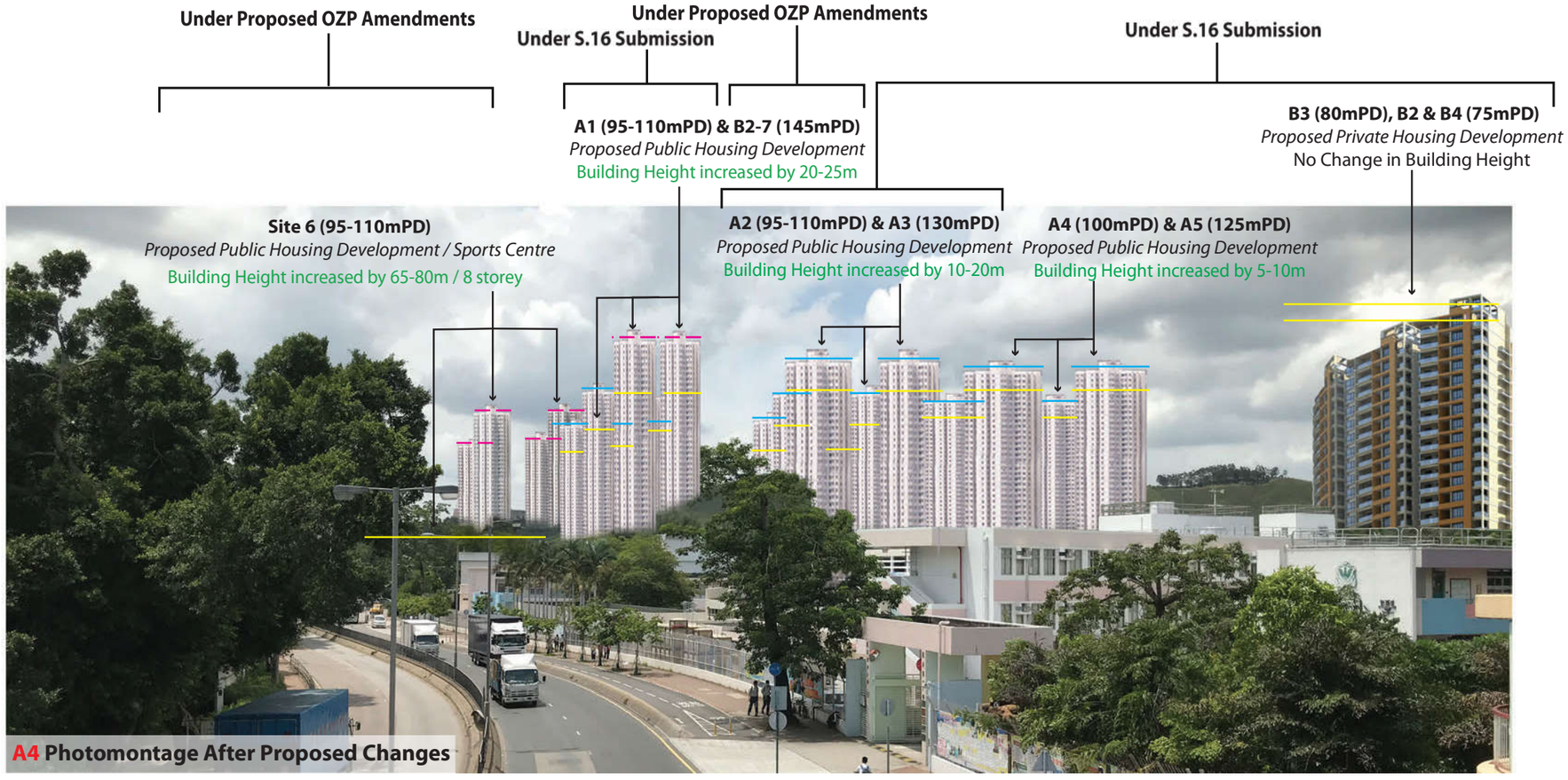


A4 Photomontage After Proposed Changes

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

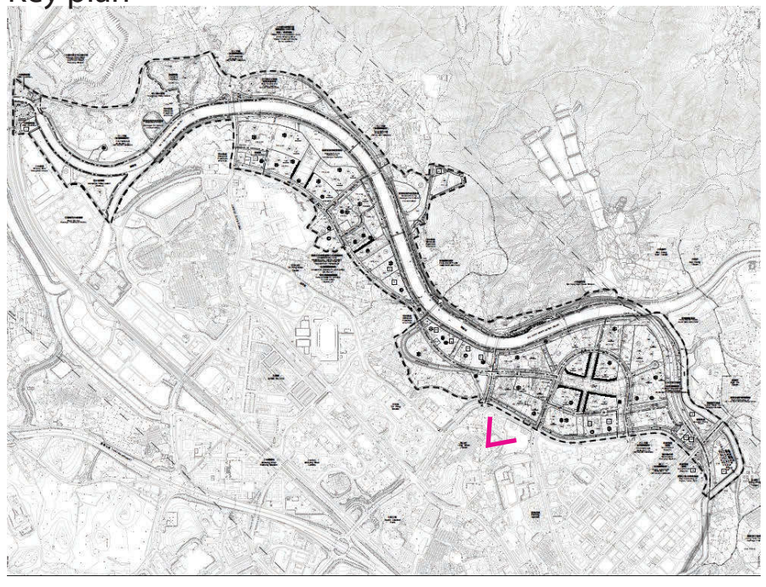
Proposed Building Height Relaxation Under Current Proposed OZP Amendments

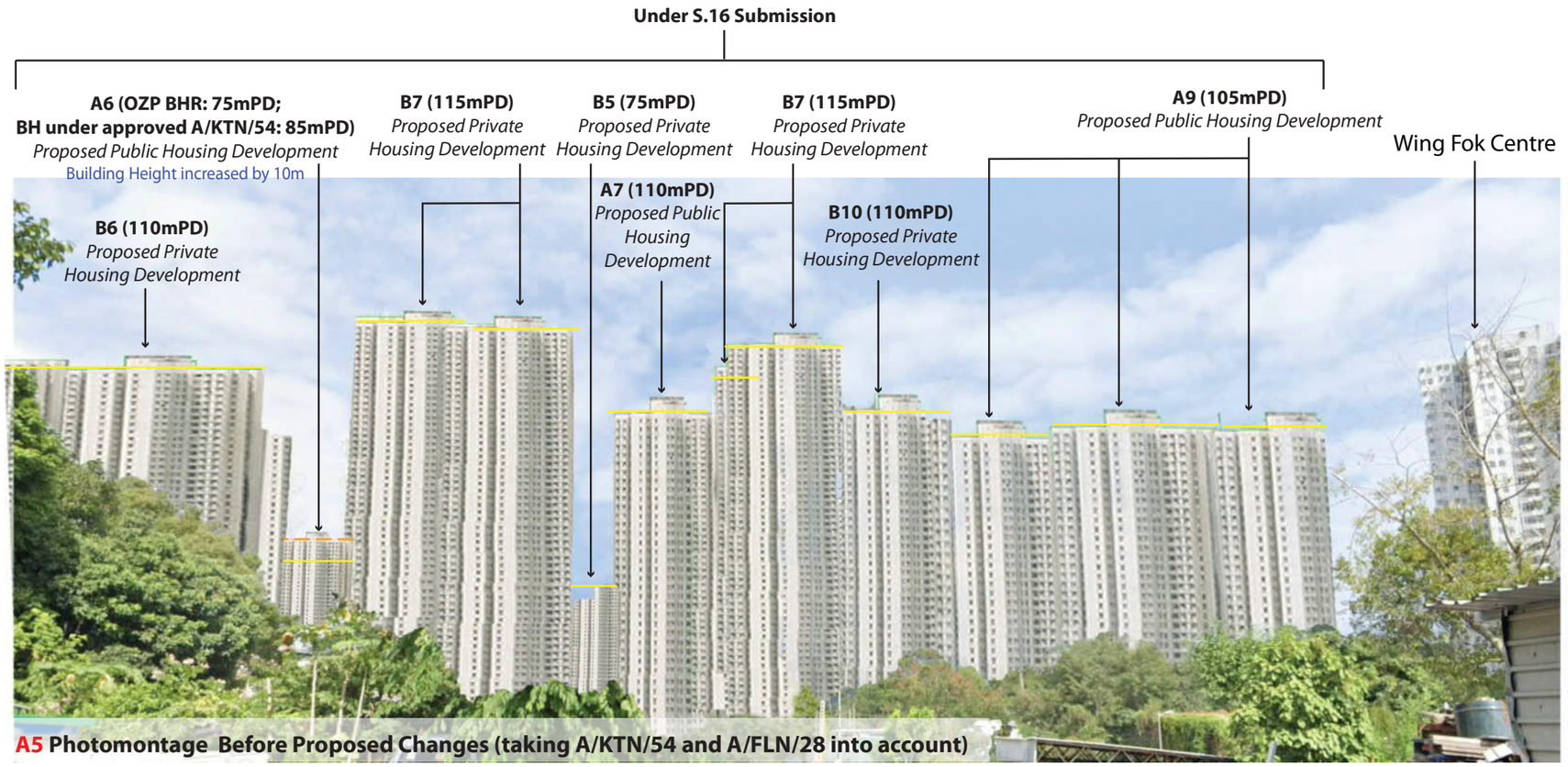
A5 Ling Shan Road



A5 Existing view

Key plan



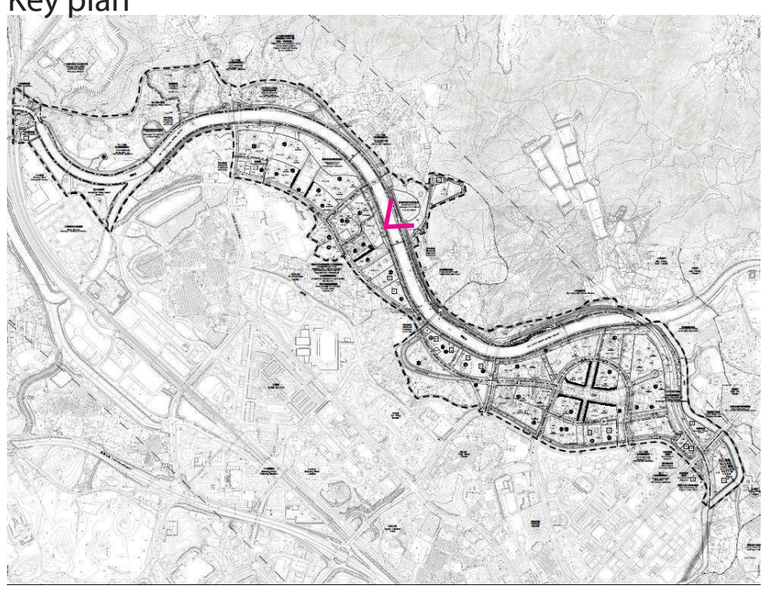

Under S.16 Submission
A6 (OZP BHR: 75mPD;
BH under approved A/KTN/54: 85mPD)
Proposed Public Housing Development
Building Height increased by 10m
B7 (115mPD)
Proposed Private Housing Development
B5 (75mPD)
Proposed Private Housing Development
B7 (115mPD)
Proposed Private Housing Development
A9 (105mPD)
Proposed Public Housing Development
Wing Fok Centre
B6 (110mPD)
Proposed Private Housing Development
A7 (110mPD)
Proposed Public Housing Development
B10 (110mPD)
Proposed Private Housing Development
A5 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)
Under S.16 Submission
B6 (120mPD)
Proposed Private Housing Development
Building Height increased by 10m
B7 (140mPD)
Proposed Private Housing Development
Building Height increased by 25m
B5 (80mPD)
Proposed Private Housing Development
Building Height increased by 5m
B7 (140mPD)
Proposed Private Housing Development
Building Height increased by 25m
A9 (135mPD)
Proposed Public Housing Development
Building Height increased by 30m
Wing Fok Centre
A6 (97.5mPD)
Proposed Public Housing Development
Building Height increased by 12.5m
A7 (135mPD)
Proposed Public Housing Development
Building Height increased by 30m
B10 (120mPD)
Proposed Private Housing Development
Building Height increased by 10m
A5 Photomontage After Proposed Changes
Building Height Changes Between OZP Restriction & Application No. A/KTN/54
Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)
Building Height Restriction Under OZP Application No. S/FLN/2
Proposed Building Height Relaxation Under S16 Application No. A/FLN/30
Building Height Relaxation Under Application No. A/KTN/54

A6 Opposite from Society for Indigenous Learning



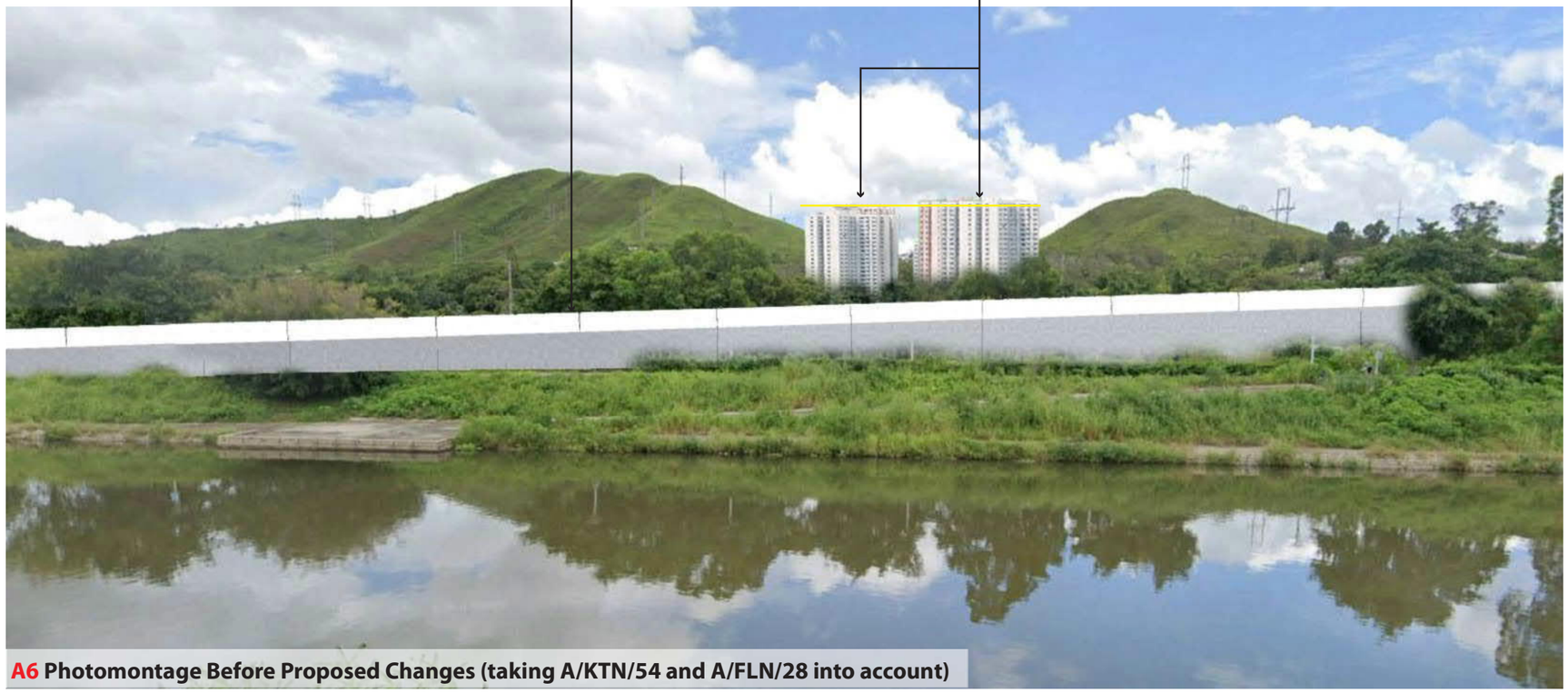
A6 Existing view

Key plan



Fanling Western Bypass

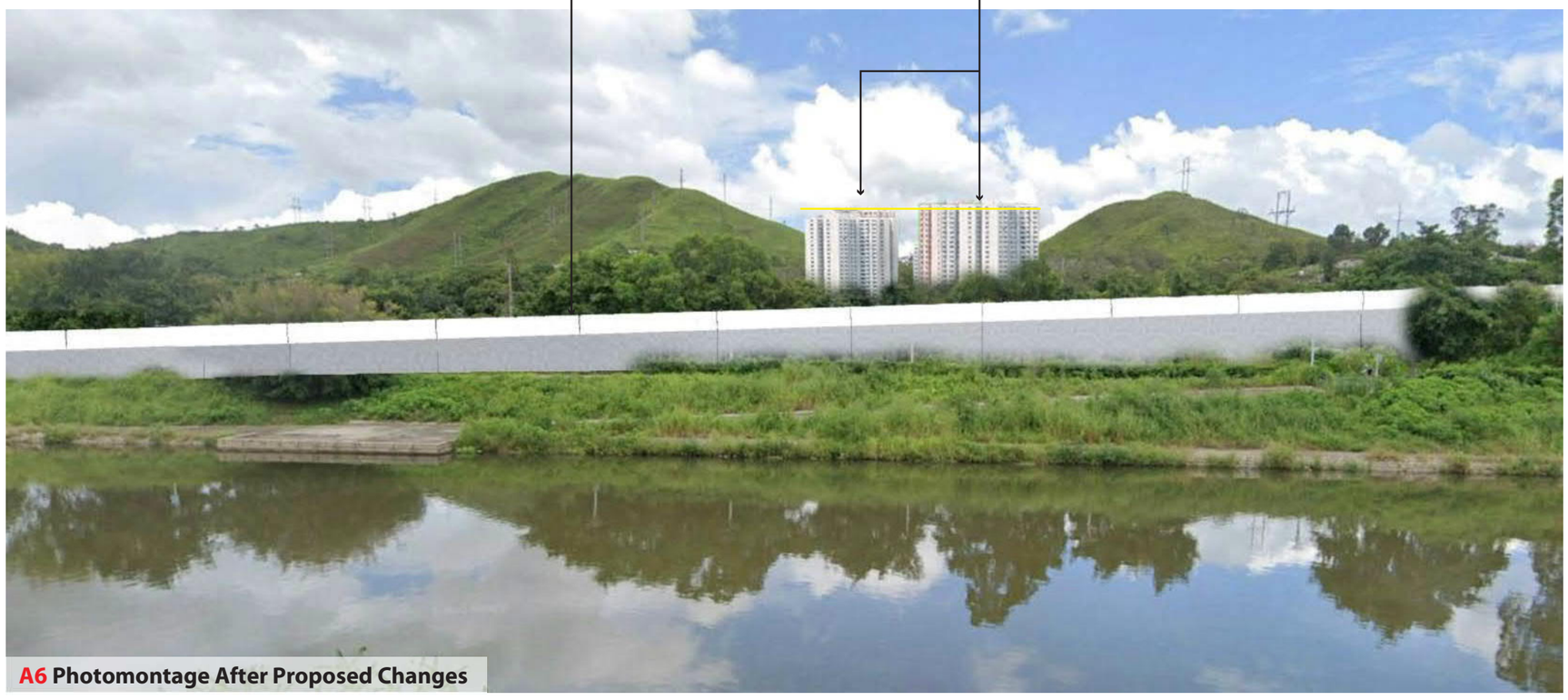
B1 (55mPD)
Proposed Private Housing Development



A6 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Fanling Western Bypass

B1 (55mPD)
Proposed Private Housing Development
No Change in Building Height



A6 Photomontage After Proposed Changes

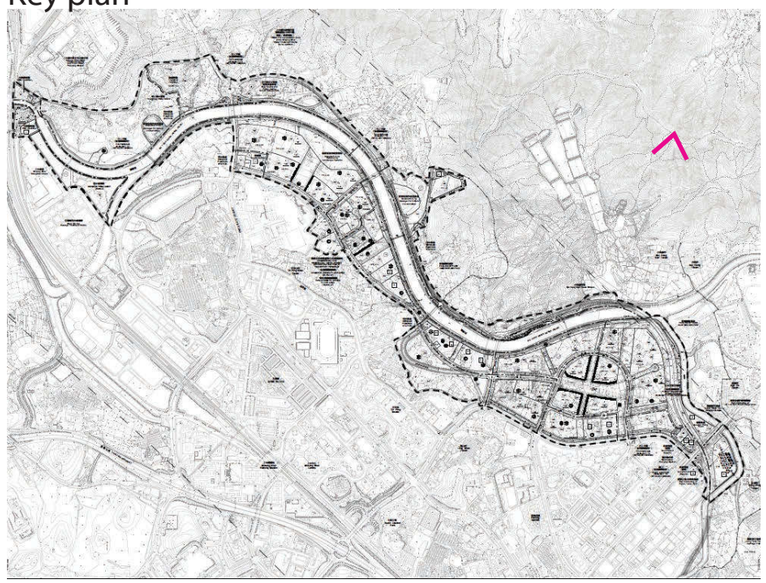
Building Height Restriction Under OZP
Application No. S/FLN/2

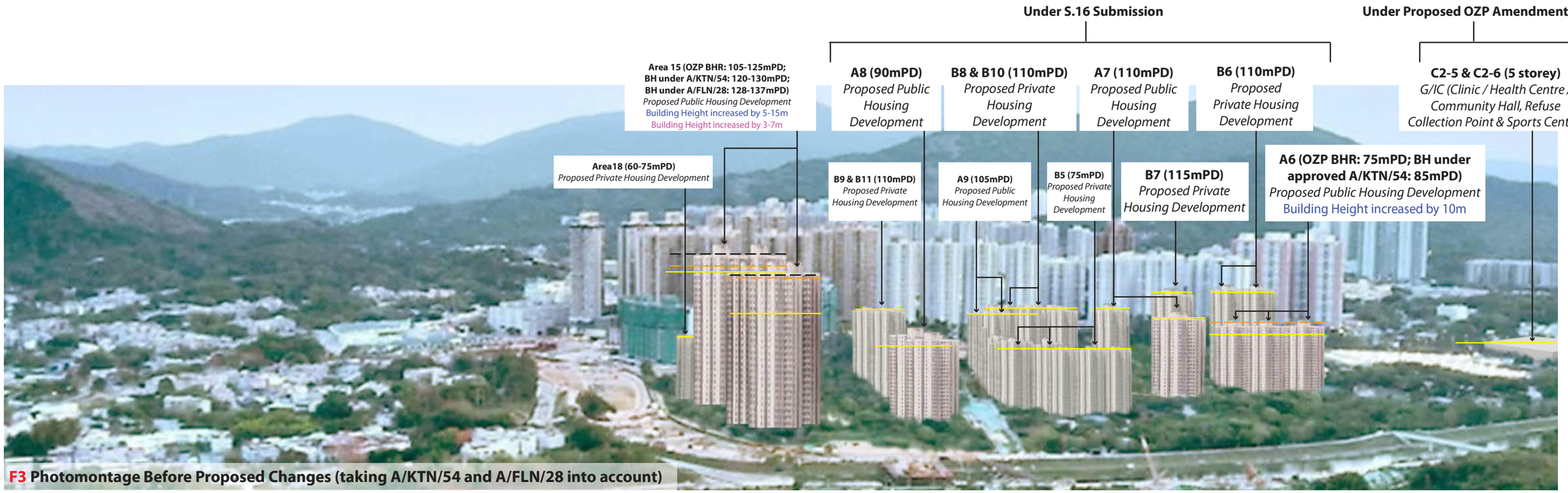
F3 Tsung Shan, High Hill



F3 Existing View

Key plan





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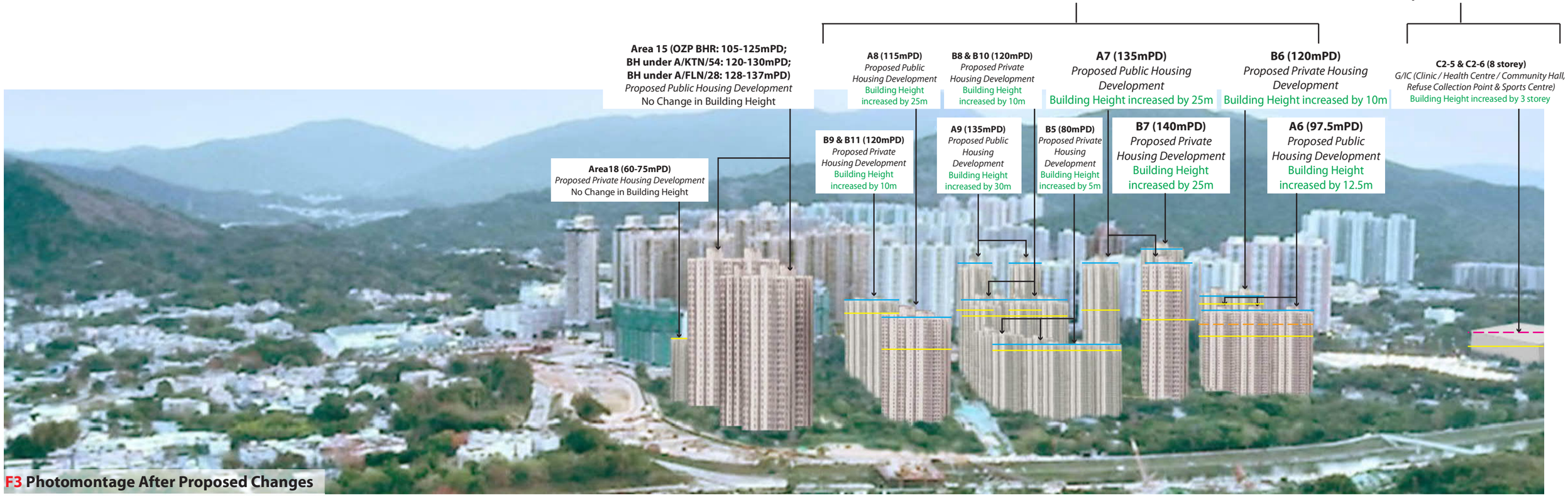


F3 Photomontage After Proposed Changes

Building Height Changes Between OZP Restriction & Application No. A/KTN/54

Building Height Changes Between OZP Restriction & Application No. A/FLN/28

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

Proposed Building Height Relaxation Under Current Proposed OZP Amendments

Building Height Relaxation Under Application No. A/KTN/54

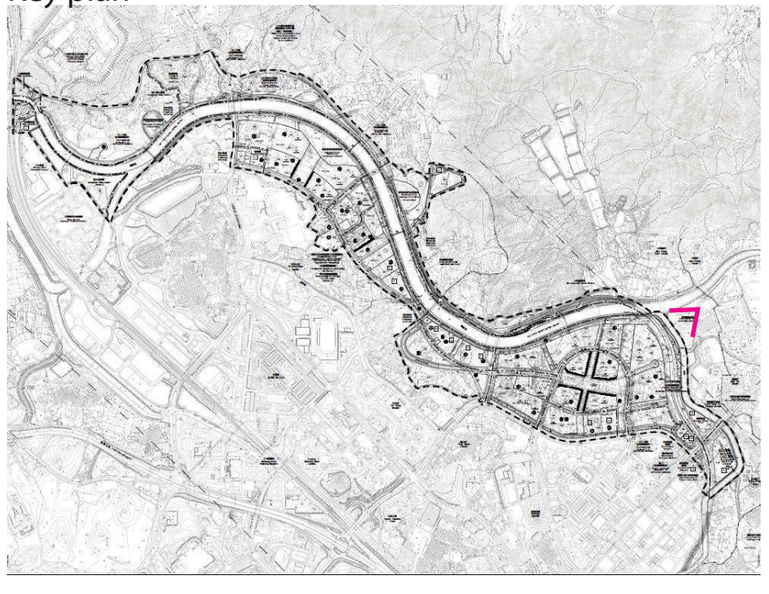
Building Height Relaxation Under Application No. A/FLN/28

F5 Kan Lung Tsuen



F5 Existing View

Key plan



Under S.16 Submission

Belair Monte

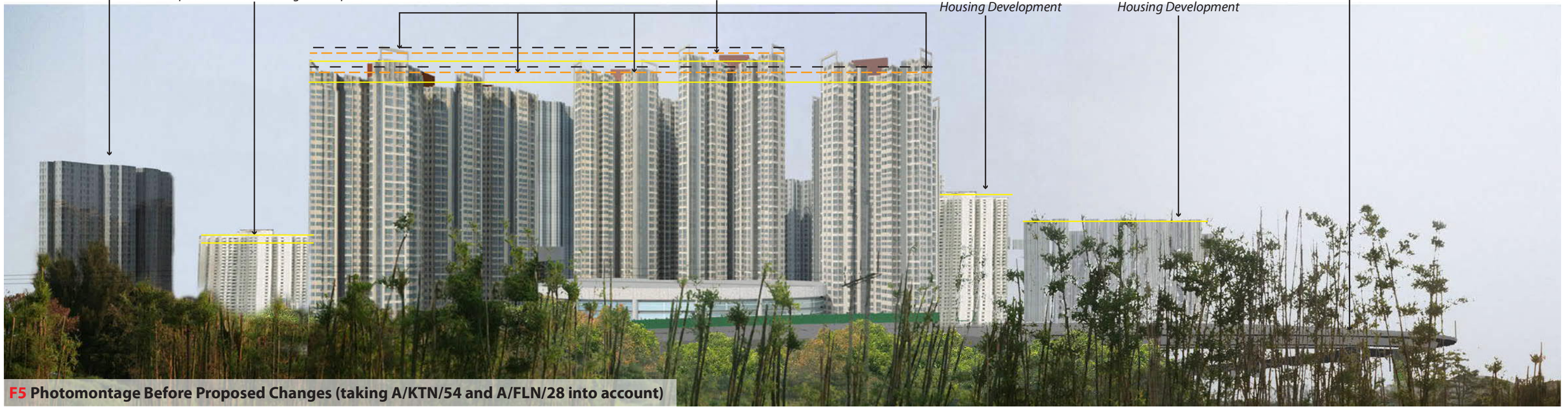
Area18 (60-75mPD)
Proposed Private Housing Development

Area 15 (OZP BHR: 105-125mPD; BH under A/KTN/54: 120-130mPD; BH under A/FLN/28: 128-137mPD)
Proposed Public Housing Development
Building Height increased by 5-15m
Building Height increased by 3-7m

A8 (90mPD)
Proposed Public Housing Development

B5 (75mPD)
Proposed Private Housing Development

Elevated Fanling Bypass



F5 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Under S.16 Submission

Belair Monte

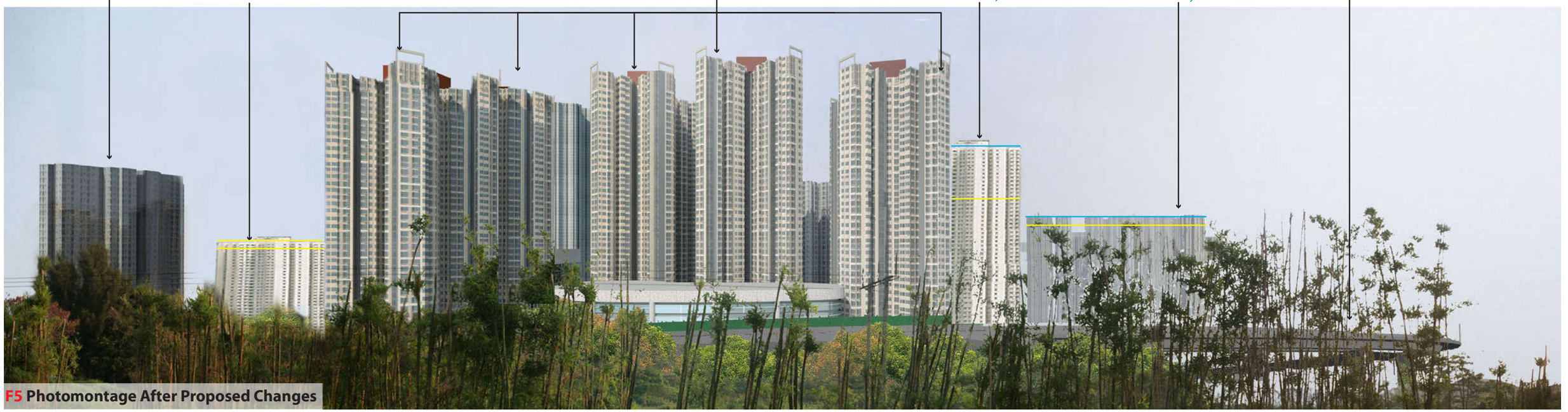
Area18 (60-75mPD)
Proposed Private Housing Development
No Change in Building Height

Area 15 (OZP BHR: 105-125mPD; BH under A/KTN/54: 120-130mPD; BH under A/FLN/28: 128-137mPD)
Proposed Public Housing Development
No Change in Building Height

A8 (115mPD)
Proposed Public Housing Development
Building Height increased by 25m

B5 (80mPD)
Proposed Private Housing Development
Building Height increased by 5m

Elevated Fanling Bypass



F5 Photomontage After Proposed Changes

Building Height Changes Between OZP Restriction & Application No. A/KTN/54

Building Height Changes Between OZP Restriction & Application No. A/FLN/28

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

Proposed Building Height Relaxation Under Current Proposed OZP Amendments

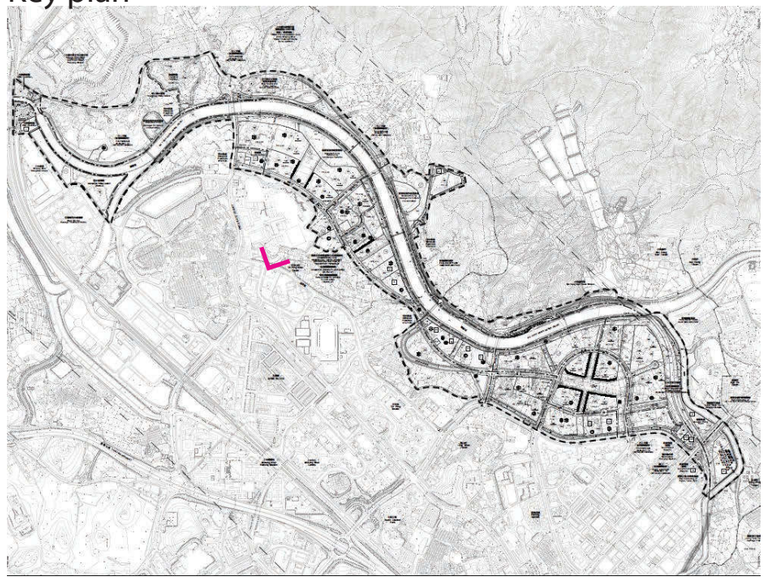
Building Height Relaxation Under Application No. A/KTN/54

Building Height Relaxation Under Application No. A/FLN/28

F23 Sheung Shui Fire Station



Key plan



Under Proposed OZP Amendments

Under S.16 Submission

B2-7 (120mPD)
Proposed Public Housing Development

A1 (75-90mPD)
Proposed Public Housing Development

A3 (120mPD)
Proposed Public Housing Development

A2 (75-90mPD)
Proposed Public Housing Development

A5 (120mPD)
Proposed Public Housing Development

A4 (90mPD)
Proposed Public Housing Development

B3 (80mPD), B2 & B4 (75mPD)
Proposed Private Housing Development



F23 Photomontage Before Proposed Changes (taking A/KTN/54 and A/FLN/28 into account)

Under Proposed OZP Amendments

Under S.16 Submission

B2-7 (145mPD)
Proposed Public Housing Development
Building Height increased by 25m

A1 (95-110mPD)
Proposed Public Housing Development
Building Height increased by 20m

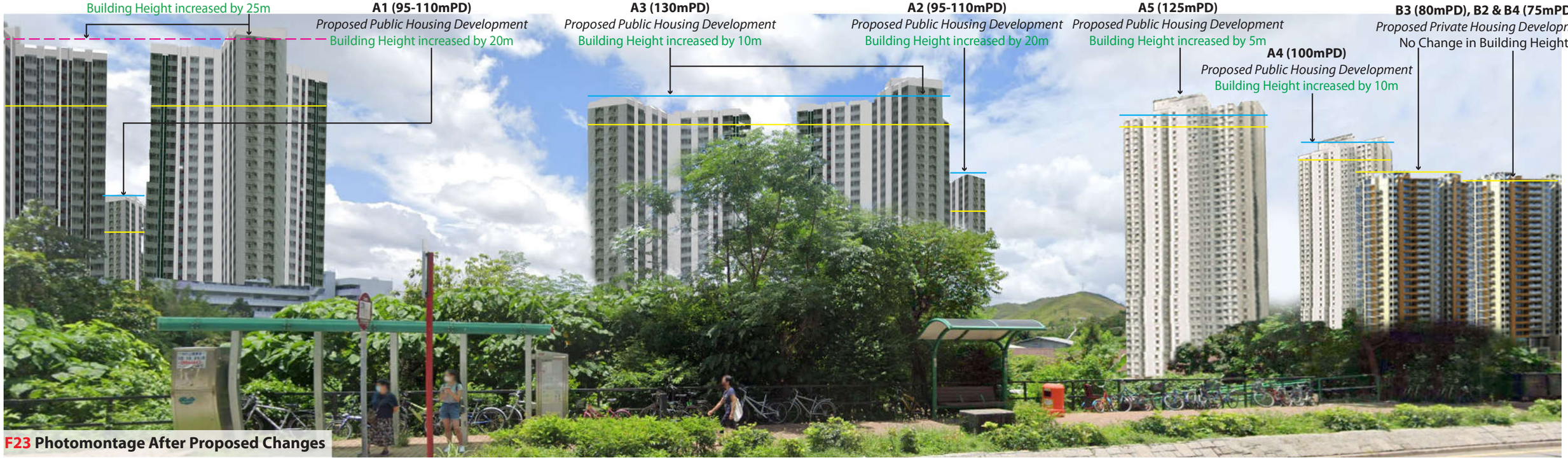
A3 (130mPD)
Proposed Public Housing Development
Building Height increased by 10m

A2 (95-110mPD)
Proposed Public Housing Development
Building Height increased by 20m

A5 (125mPD)
Proposed Public Housing Development
Building Height increased by 5m

A4 (100mPD)
Proposed Public Housing Development
Building Height increased by 10m

B3 (80mPD), B2 & B4 (75mPD)
Proposed Private Housing Development
No Change in Building Height



F23 Photomontage After Proposed Changes

Proposed Building Height Changes Between OZP Restriction & The Proposed Development (S16 + OZP Amendment)

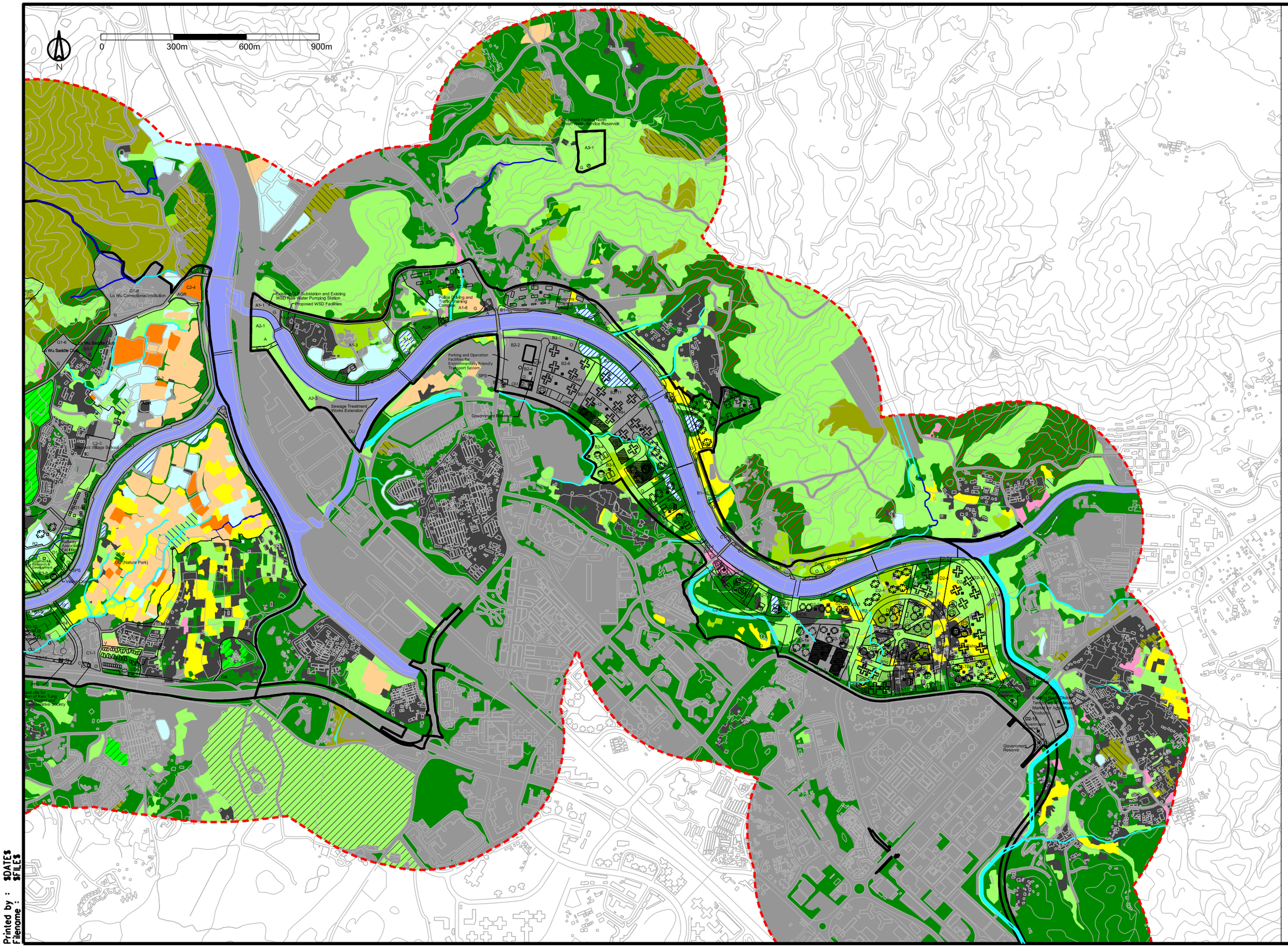
Building Height Restriction Under OZP Application No. S/FLN/2

Proposed Building Height Relaxation Under S16 Application No. A/FLN/30

Proposed Building Height Relaxation Under Current Proposed OZP Amendments

APPENDIX D

HABITATS AND LAND USE IN FLN NDA AND APPROVED EIA



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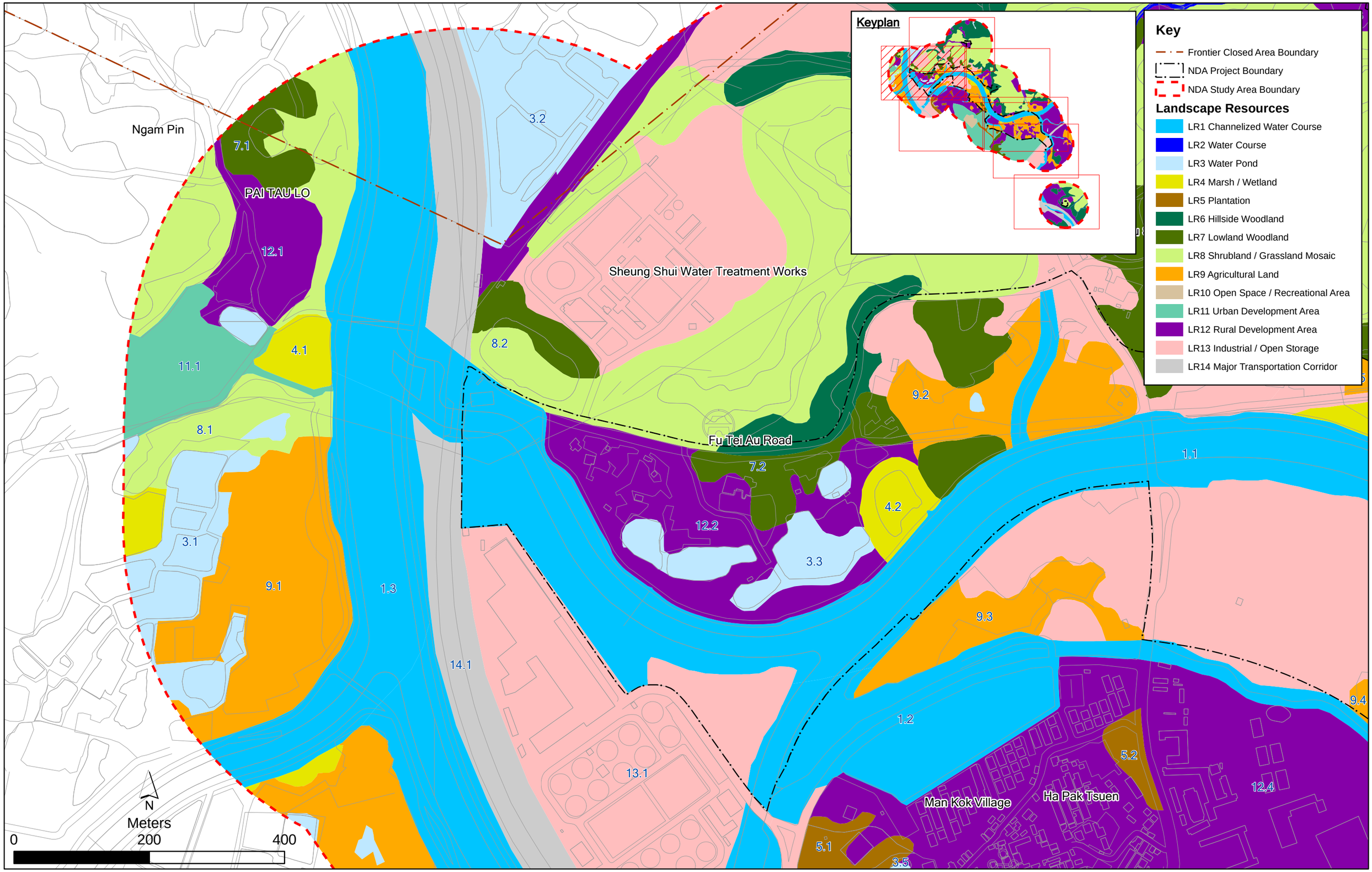
APPENDIX E

LANDSCAPE RESOURCES AT SITES 4, 5 AND 6



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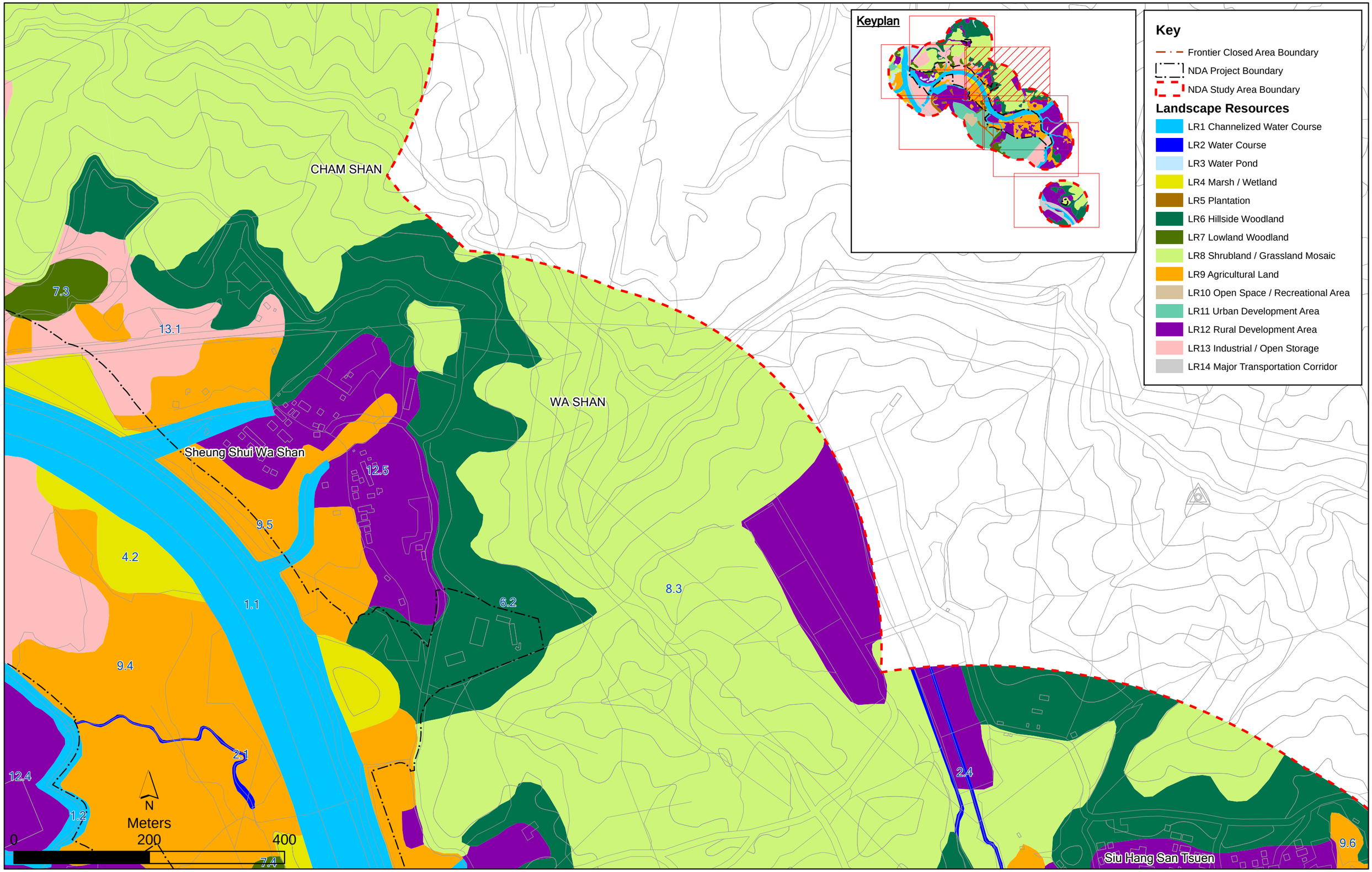


土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

規劃署 PLANNING DEPARTMENT

ARUP

Job Title

Agreement No. CE 61/2007 (CE)
North East New Territories New Development Areas
Planning and Engineering Study - Investigation

Drawing Title

Landscape Resources (LRs) in the Study Area for FLN NDA (3 of 7)

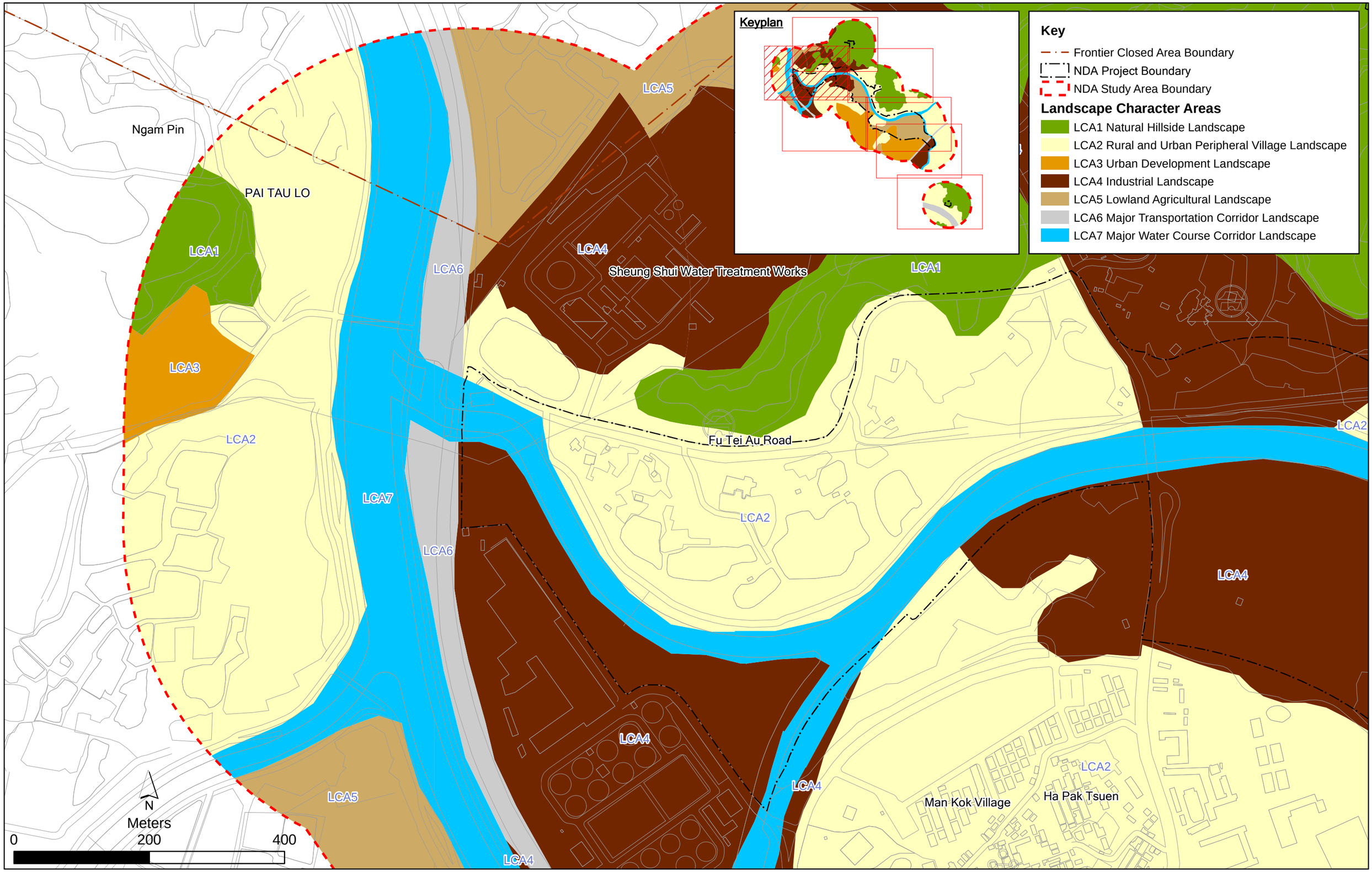
Rev	Description	Date

Drawn N.Ng | Date 31/5/2013 | Checked | Approved | Scale 1:5,000 | Drawing No. Figure 12.6.3 | Rev. E

File: T:\GIS\CONTRACT\0185407\Mxd\Schedule_3\Baseline_LR\0185407_LR_FLN_Baseline_3.mxd

APPENDIX F

LANDSCAPE CHARACTER AREAS AT SITES 4, 5 AND 6



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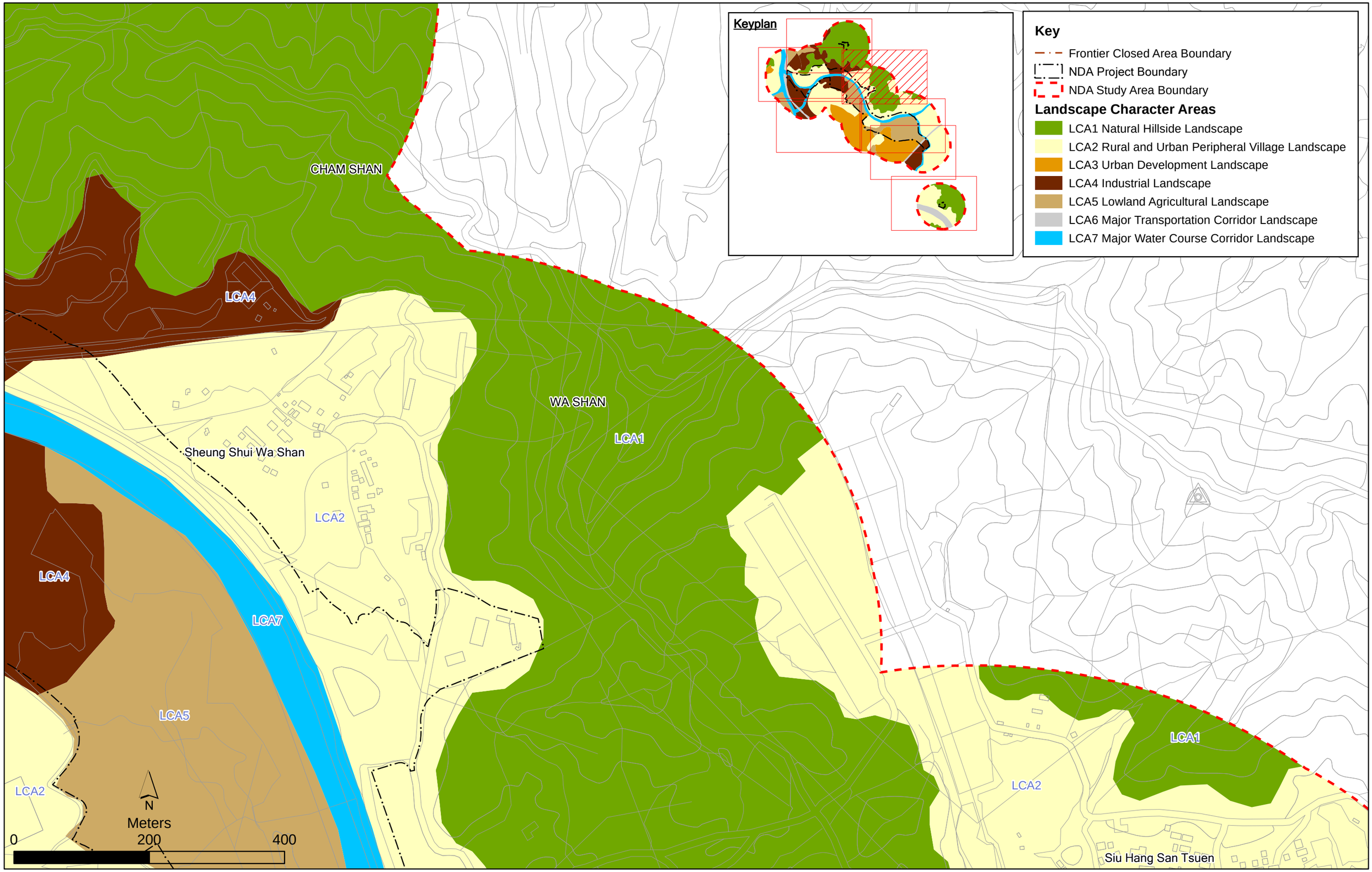

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

規劃署
PLANNING DEPARTMENT

ARUP

Job Title
Agreement No. CE 61/2007 (CE)
North East New Territories New Development Areas
Planning and Engineering Study - Investigation

Drawing Title
Landscape Character Areas (LCAs) in the Study Area for FLN NDA (3 of 7)

Rev	Description	Date

Drawn: N.Ng | Date: 30/5/2013
Checked | Approved
Scale: 1:5,000
Drawing No.: Figure 12.8.3
Rev. E

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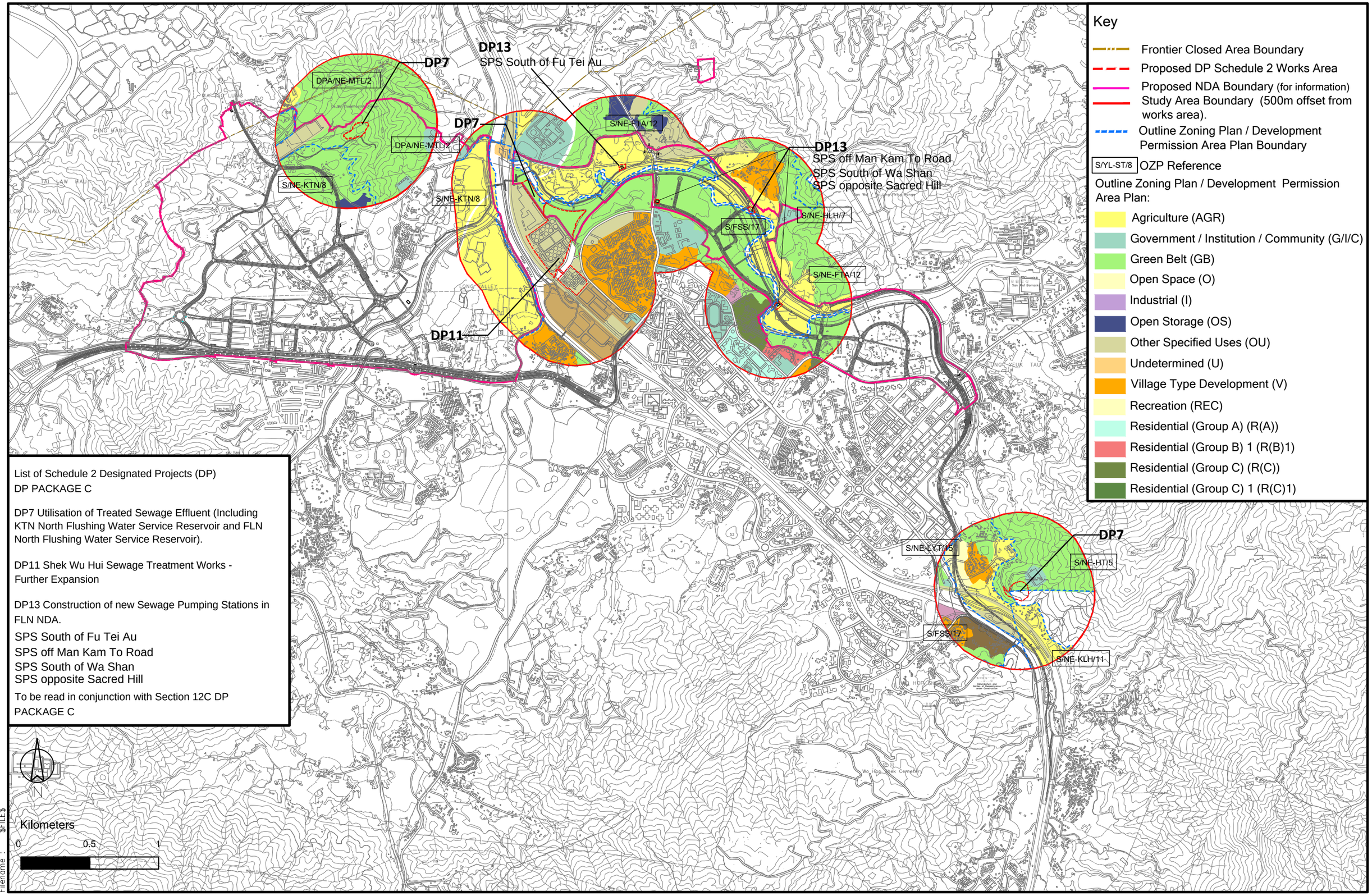
APPENDIX G

LOCATION PLAN OF DESIGNATED PROJECTS (DPS) 7 TO 13



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Rev | Description | Date

Key

- Frontier Closed Area Boundary
- Proposed DP Schedule 2 Works Area
- Proposed NDA Boundary (for information)
- Study Area Boundary (500m offset from works area).
- Outline Zoning Plan / Development Permission Area Plan Boundary

S/YL-ST/8 OZP Reference

Outline Zoning Plan / Development Permission Area Plan:

- Agriculture (AGR)
- Commercial / Residential (C/R)
- Commercial / Residential (C/R) (1)
- Commercial / Residential (C/R) (2)
- Commercial / Residential (C/R) (3)
- Comprehensive Development Area (CDA)
- Government / Institution / Community (G/I/C)
- Green Belt (GB)
- Industrial (I)
- Open Space (O)
- Open Storage (OS)
- Other Specified Uses (OU)
- Recreation (REC)
- Residential (Group A) (R(A))
- Residential (Group B) 1 (R(B)1)
- Residential (Group C) (R(C))
- Residential (Group C) 1 (R(C)1)
- Residential (Group C) 2 (R(C)2)
- Village Type Development (V)

List of Schedule 2 Designated Projects (DP)
DP PACKAGE D

DP8 Po Shek Wu Interchange Improvement.

DP9 Fanling Bypass Western Section (New Road)

DP10 Fanling Bypass Eastern Section (New Road)

DP12 Reprovision of wholesale market in FLN NDA.

To be read in conjunction with Section 12D DP PACKAGE D

S/NE-FTA/12
S/NE-HLH/7
DP9
S/FSS/17
S/NE-FTA/12
DP10
S/NE-LYT/15
DP12
S/FSS/17
DP8
DP10
S/NE-HT/5
S/FSS/17
S/NE-KLH/11

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PLANNING DEPARTMENT

ARUP

Job Title
Agreement No. CE 61/2007 (CE)
North East New Territories New Development Areas
Planning and Engineering Study - Investigation

Drawing Title
Planning and Development Control Framework---Schedule 2 DP 8,9,10 and 12

Rev	Description	Date

Drawn	Date
RD	01/04/13
Checked	Approved
JC	JC
Scale	
1:15,000@A3	

Drawing No.
Figure 12.50.4

Rev. C

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APPENDICES

Appendix A VR Contour Plot of CFD Simulation Results
Appendix B VR Vector Plot of CFD Simulation Results
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Appendix D VR Contour Plot of the Whole Simulation Domain
Appendix E Layout for Site Number Reference

EXECUTIVE SUMMARY

Civil Engineering and Development Department appointed Atkins China Limited to undertake the Agreement No. CE 18/2019 (CE) Development of Fanling North New Development Area Remaining Phase – Design and Construction. An Air Ventilation Assessment Initial Study (AVA-IS) is conducted to assess air ventilation impacts of the rezoning of land at Sites 4-6 and Site B2-7 in FLN NDA.

Methodology

This study follows the Technical Guide for AVA for Developments in Hong Kong (Technical Guide) annexed in HPLB and ETWB TC No. 1/06 and the requirements stated in the Project Brief.

Study Schemes

This AVA study was carried out to assess the ventilation impacts of the following scenarios:

a) **Baseline Scheme –** This is to evaluate the ventilation performance of baseline condition which is the approved Fanling North OZP No. S/FLN/2, Planning Application No. A/KTN/54 and Planning Application No. A/FLN30 – OZP compliant scheme.

b) **Proposed Scheme –** This is to consider the ventilation impact of the development proposal of Sites 4 – 6 and Site B2-7.

Site Wind Availability

"Experimental Site Wind Availability Study for the North-East New Territories New Development Areas" (WWTF018-2010) conducted in 2010 to determine the site wind availability and characteristics for FLN NDA Study Area was adopted for this AVA study.

Twelve most frequent wind directions with accumulative occurrence percentage of at least 75% for both annual and summer condition were considered in this study according to the HPLB Technical Circular No. 1/06 on AVA. The table overleaf illustrate the selected wind directions analysed with their corresponding probability.

Wind Direction	Probability	Annual Condition	Wind Direction	Probability	Summer Condition
E	**23.4%**		**SW**	**14.5%**	
ENE	**15.1%**		**E**	**13.8%**	
N	**12.1%**		**S**	**10.1%**	
NE	**8.8%**	**77.5%**	**WSW**	**9.7%**	**77.3%**
NNE	**8.3%**		**SSW**	**8.3%**	
ESE	**4.9%**		**ESE**	**7.9%**	
SW	**4.9%**		**SE**	**6.5%**	
S	4.3%		**W**	**6.5%**	
WSW	3.2%		SSE	6.4%	
SE	3.1%		ENE	4.8%	
SSW	3.1%		N	2.5%	
SSE	3.0%		NE	2.5%	
W	2.5%		NNE	2.2%	
NNW	1.5%		WNW	2.0%	
WNW	1.0%		NNW	1.2%	
NW	0.6%		NW	1.1%	

CFD Simulation Results

As tabulated, below, the annual spatial velocity ratio (SVR) for baseline and proposed schemes are both 0.26 whilst the summer SVR are 0.23 and 0.24 respectively. The annual local velocity ratio (LVR) for baseline and proposed schemes are both 0.23 respectively whilst the summer LVR are 0.21 for both cases. The result above shows that the Proposed Scheme will be no worse off comparing with the base scheme in both site and localized ventilation perspective. Therefore, the development proposal would not cause a significant ventilation impact within the surrounding existing built environment and other FLN NDA areas.

Annual Condition	Baseline Scheme	Proposed Scheme
SVR	0.26	0.26
LVR	0.23	0.23

Summer Condition	Baseline Scheme	Proposed Scheme
SVR	0.23	0.24
LVR	0.21	0.21

1. INTRODUCTION

1.1. Background

1.1.1. On 24 December 2019, Civil Engineering and Development Department (hereinafter called "CEDD") of the Government of the Hong Kong Special Administrative Region appointed Atkins China Limited (hereinafter called "Atkins") to undertake the Agreement No. CE 18/2019 (CE) - Development of Fanling North New Development Area, Remaining Phase – Design and Construction (hereinafter called "the Assignment").

1.1.2. In 1990s, the Territorial Development Strategy Review first raised the potential of strategic growth in the North East New Territories (NENT). The Planning and Development Study on NENT (the NENT Study) was commissioned in 1998 and was completed in 2003. The NENT Study identified the areas at Kwu Tung North (KTN), Fanling North (FLN) and Ping Che/ Ta Kwu Ling (PC/TKL) as suitable sites for the development of New Development Area (NDA) in the NENT.

1.1.3. The 2007-08 Policy Address outlined the plan for NDA to meet the demand for land arising from population growth. The NENT NDA Study was commissioned jointly by the CEDD and PlanD in June 2008 and was completed in December 2013. Various planning, engineering and environmental studies were completed to formulate a revised proposal for the NENT NDA based on the NENT Study, confirm the feasibility of implementing the revised proposal and formulate the implementation strategies and programme for the NDA. A planning and development framework for the KTN/ FLN and PC/ TKL NDA was established to meet the long-term demand for housing, especially public housing and employment.

1.1.4. The KTN/ FLN NDA would be implemented in two phases. First Phase development of KTN/ FLN NDA was commissioned by CEDD in November 2014, detailed design and site investigation of the First Phase Works (i.e. the site formation and engineering infrastructure for Advance Works and First Stage Works) had been carried out. A Planning and Engineering Review (P&E Review) was completed under the First Phase Assignment to optimize the development potential of the KTN/ FLN NDA for an increase of potential housing supply. The Town Planning Board approved at its meeting in November 2018 the proposal recommended by the P&E Review for minor relaxation of the development intensity of selected housing sites. There would be 72 000 new flats for a target new population of about 188 000 upon full completion of the KTN/ FLN NDA. The First Phase Works would support residential development with about 21 000 flats for a total population of about 53 000, whereas the Remaining Phase Works would support the rest.

1.1.5. In December 2019, a Land Use Review (LUR) for three sites in KTN NDA and three sites in FLN NDA (Six Sites) commissioned to review the alternative land uses and development potential. During the LUR, was found technically feasible to accommodate an addition of about 9,000 housing flats in KTN and FLN NDA on top of the aforesaid planned 72 000 new flats in KTN/FLN NDA. Given the Six Sites are located at the fringe of the NDA, it was proposed to examine the feasibility of re-allocating these additional housing units to the planned public and/or private housing sites in the Remaining Phase development of the NDA by increasing the development intensity of individual sites (i.e. new Planning and Engineering Review (PER (FLN))). Based on the latest broad technical assessments, it is considered feasible to increase the development intensity of public housing sites in the Remaining Phase development of FLN NDA by 30% and private housing sites by 20% from infrastructure and environmental perspective.

1.1.6. In parallel with the above, additional gross floor area (GFA) equivalent to 5% of domestic GFA is assumed for public housing developments according to the prevailing policy on provision of social welfare facilities (SWF) ; parking provisions are updated in accordance with the latest parking provision standards; and a new Land Use Review for the three sites in FLN NDA (Three Sites) (i.e. Sites 4, 5 and 6) is conducted (LUR (FLN)).

1.1.7. The target completion for the LUR (FLN) and PER (FLN) is in 2022 for proceeding with subsequent Section 16 Planning Application and rezoning exercise submission and for commencement of construction work in 2024.

1.2. Objective of the Report

1.2.1. As a part of the consultancy assignment, an Air Ventilation Assessment Initial Study (AVA-IS) is required to assess air ventilation impacts of the rezoning of land at Sites 4-6 and Site B2-7 in FLN NDA.

1.2.2. Using methodology outlined in the Technical Guide for AVA for Developments in Hong Kong (Technical Guide) annexed in HPLB and ETWB TC No. 1/06 as a basis, the impacts of the proposed development on pedestrian level wind environment were analysed and investigated. Computational Fluid Dynamics (CFD) simulation was employed as the assessment tool for quantitative ventilation performance evaluation in the study. In essence, the main purposes of this assignment, echoing the technical guide include:

(a) to assess characteristics of the wind availability (V_∞) of the site;

(b) to give a general pattern of the proposed design and a quantitative estimates of wind performance at pedestrian levels (at street level) reported using Wind Velocity Ratio (VR); and

(c) to identify ventilation performance of the proposed design and areas of concerns in the neighbourhood;

1.3. Structure of the Report

1.3.1. The remainder of this report is further divided into the following sections:

a) **Chapter 2** – Broad-brush Review;

b) **Chapter 3** – AVA Study Scheme Comparison;

c) **Chapter 4** – AVA Assessment Methodology;

d) **Chapter 5** – Key Findings of AVA Study; and

e) **Chapter 6** – Summary and Conclusion.

2. BROAD-BRUSH REVIEW

2.1. Site Environments

2.1.1. The FLN NDA is located at the north of existing Fanling/Sheung New Town area with a total coverage area of around 165 Ha. The study FLN NDA and existing Fanling/Sheung Shui New Town is situated at flatland with average ground level of around 10mPD. Hilly terrain including Chm Shan, Wa Shan, High Hill and Lamb Hill is located at the north of FLN NDA with height of peaks ranged from 110 – 165 mPD.

2.1.2. To the south of the proximity of FLN NDA are mainly villages, residential and industrial developments such as Sheung Shui Heung, Tin Ping Estate, Luen Wo Hui and On Lok Tsuen with a general building height ranged from 10 – 50 mPD for low rise villages/buildings and 80 – 130 mPD for high rise buildings.

Figure 2.1-1 Location of FLN NDA Site and Subject Site

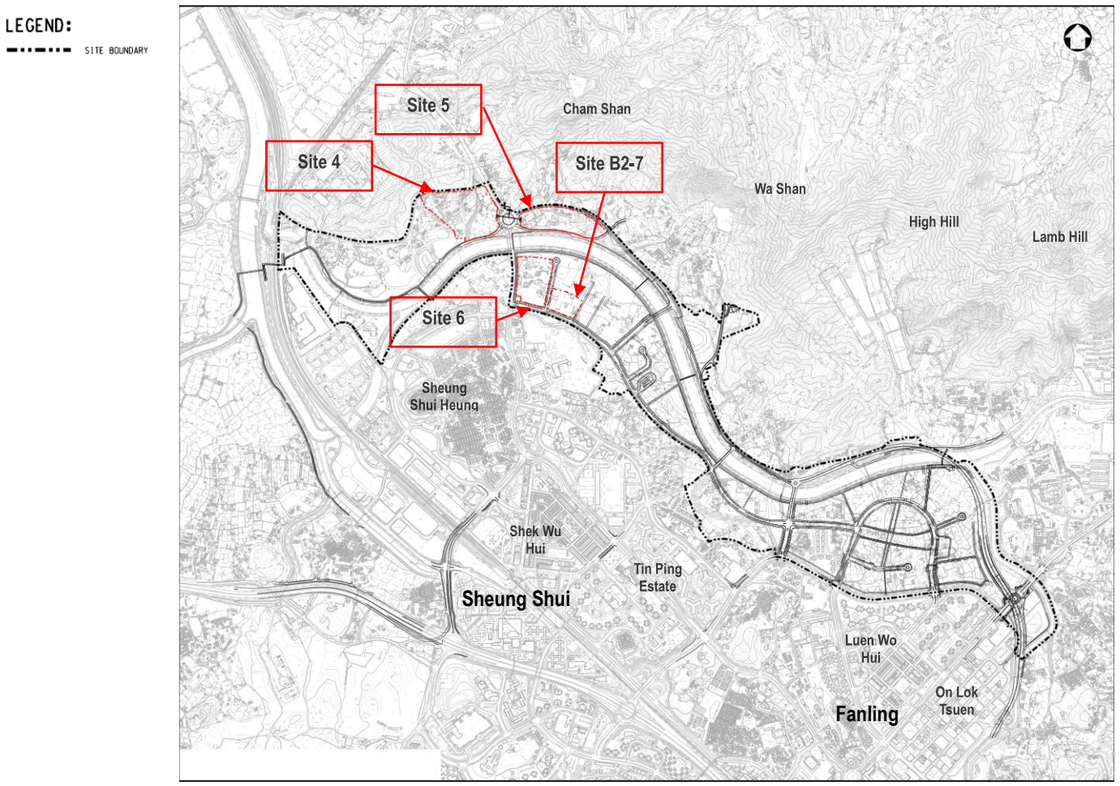
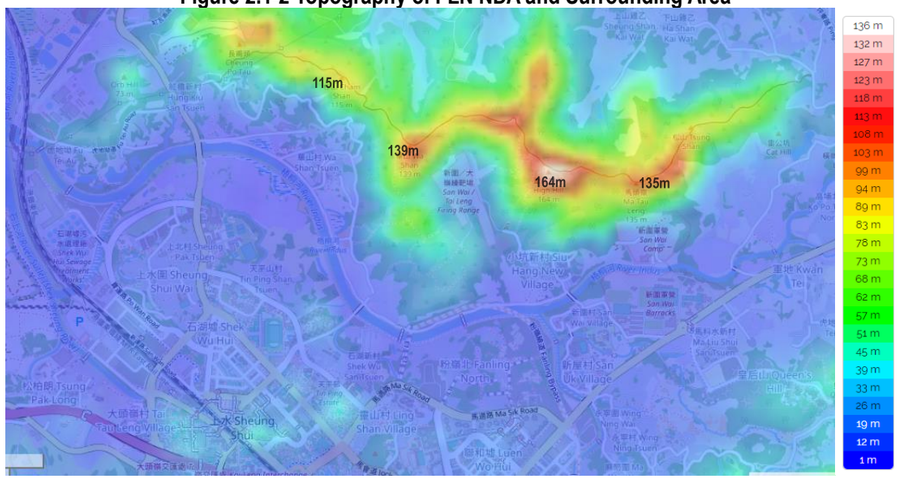


Figure 2.1-2 Topography of FLN NDA and Surrounding Area



2.2. Surrounding Building Height Profile

2.2.1. The existing built environment within vicinity of the FLN NDA and their morphology and buildings' height are described in the below. Surrounding building morphology of the project site is shown in Figure 2.2-1 to 2.2-3 and the corresponding building height is listed in Table 2.2.

Table 2.2 Existing Surrounding Building Height of in the vicinity of Proposed Housing Sites at Remaining Phase of FLN NDA

Surrounding Building as in Figure 2.2-1 (next to Eastern part of FLN NDA Housing Sites)		
1. Planned Residential Development (110mPD) [*from rezoning application No. Y/FSS/18*]	2. Wing Fok Centre (90 – 92mPD)	3. Union Plaza (82mPD)
4. Alliance Primary School (30mPD)	5. Wing Fai Centre (106 – 109mPD)	6. Regentville (117 – 120mPD)
7. Belair Monte (115mPD)	8. Green Code (123mPD)	9. Grand Regentville (130mPD)
10. Fan Garden JPO Married Quarters (106 – 108mPD)	11. Mount One (125mPD)	12. Fanling Garden (24 – 26mPD)
13. St. Joseph's Church (18mPD)	14. Luen Wo Hui Building Group (15 – 50mPD)	15. On Lok Tsuen Industrial Bldg Group (15 – 37mPD)
Surrounding Building as in Figure 2.2-3 (Between Western and Eastern part of FLN NDA Housing Sites)		
1. On Kwok Villa (20 – 23mPD)	2. Tin Ping Complex (29mPD)	3. Noble Hill (81 – 92mPD)
4. Shek Wu Hui Public School (34mPD)	5. Wai Chow Public School (39mPD)	6. Ting Ping Estate (2) (106 – 107mPD)
7. Good View New Village (21 – 25mPD)	8. The Salvation Army Shek Wu School (27mPD)	9. Ling Shan Tsuen (19 – 22mPD)
10. Sunningdale Garden (76 – 80mPD)	11. S.K.H Chan Young Secondary School (26mPD)	12. Ting Ping Estate (1) (67 – 108mPD)
13. Hong Chi Fanling Integrative Rehabilitation Complex (24mPD)		
Surrounding Building as in Figure 2.2-2 (next to Western part of FLN NDA Housing Sites)		
1. Sheung Shui Wai Building Group (~10 – 20mPD)	2. Fung Kai School Buildings (17 – 31mPD)	3. CIC Training Centre (52mPD)
4. Tsui Lai Garden (88 – 91mPD)	5. Fung Kai Care and Attention Home for Elderly (35mPD)	6. Lee Chi Tat Memorial School (18mPD)
7. Woodland Crest (54mPD)	8. Lung Sum Avenue Sports Centre (23mPD)	

Figure 2.2-1 Existing Surrounding Building Morphology next to Eastern Part of FLN NDA Housing Sites

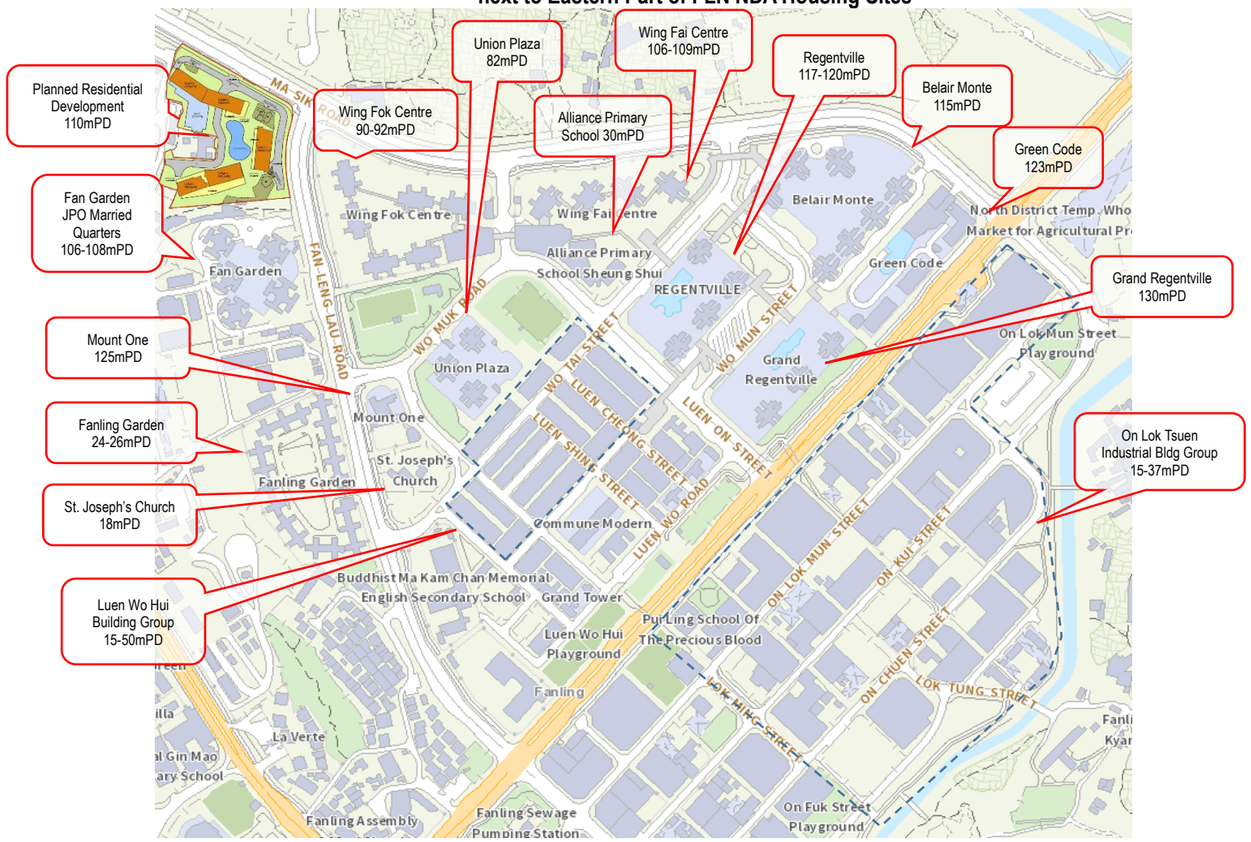


Figure 2.2-2 Existing Surrounding Building Morphology between Western and Eastern part of FLN NDA Housing Sites

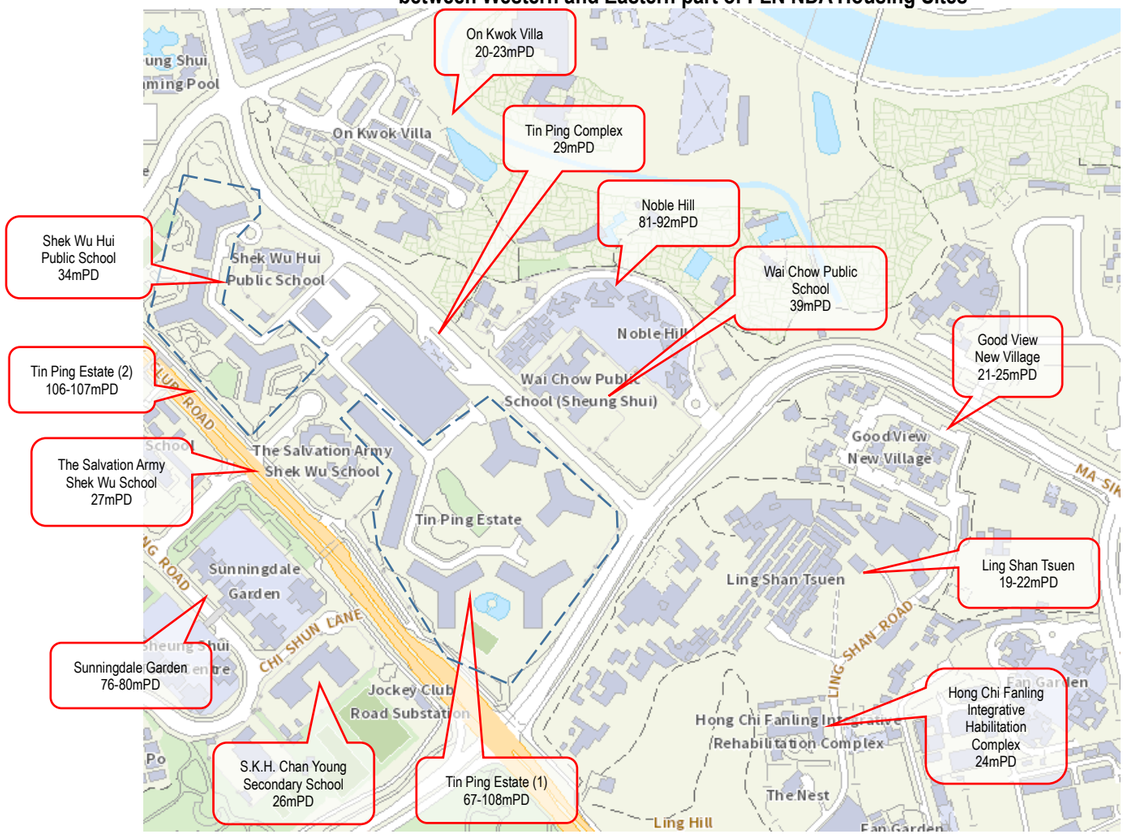
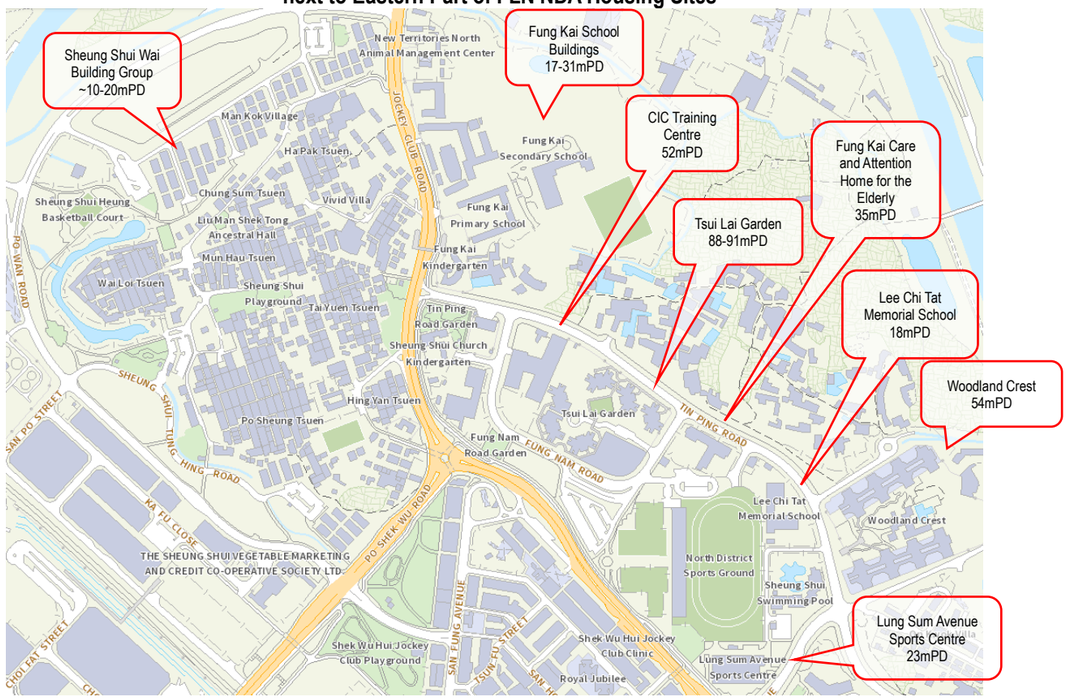


Figure 2.2-3 Existing Surrounding Building Morphology next to Eastern Part of FLN NDA Housing Sites

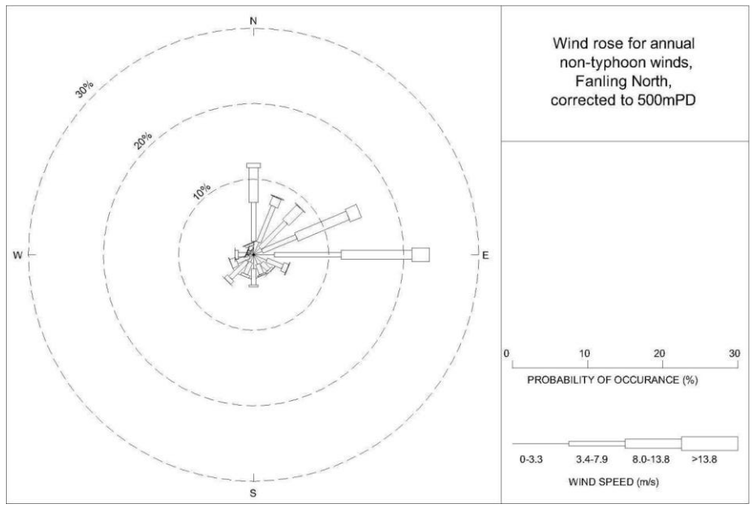


2.3. Site Wind Availability – Experimental Site Wind Data

2.3.1. "Experimental Site Wind Availability Study for the North-East New Territories New Development Areas" (WWTF018-2010) was conducted in 2010 to determine the site wind availability and characteristics for three nominated study areas as part of the North East New Territories NDAs. A Wind Tunnel study with 1:2000 scale topography model was adopted to determine the effects of the built environment and surrounding topography on mean wind direction, mean wind speed and turbulence intensity at the FLN NDA.

2.3.2. The Annual and Summer wind roses collected from the wind tunnel test result showing the dominance of each of the 16 wind directions and distribution of wind speed at 500mPD are shown as below.

Figure 2.3-1 Annual and Summer Wind Rose for the FLN NDA Study Area at 500mPD



2.3.3. At least eight most frequent wind directions with accumulative occurrence percentage of approximately 75% for both annual and summer condition shall be considered in this study according to the HPLB Technical Circular No. 1/06 on AVA. The tables overleaf show the selected wind directions with their corresponding probability.

Table 2.3-1 Frequency of Occurrence of Individual Wind Directions for Annual, at 500mPD for FLN NDA Study Area

Wind Direction	Probability	
E	**23.4%**	**77.5%**
ENE	**15.1%**	
N	**12.1%**	
NE	**8.8%**	
NNE	**8.3%**	
ESE	**4.9%**	
SW	**4.9%**	
S	4.3%	
WSW	3.2%	
SE	3.1%	
SSW	3.1%	
SSE	3.0%	
W	2.5%	
NNW	1.5%	
WNW	1.0%	
NW	0.6%	

Table 2.3-2 Frequency of Occurrence of Individual Wind Directions for Summer, at 500mPD for FLN NDA Study Area

Wind Direction	Probability	
SW	**14.5%**	**77.3%**
E	**13.8%**	
S	**10.1%**	
WSW	**9.7%**	
SSW	**8.3%**	
ESE	**7.9%**	
SE	**6.5%**	
W	**6.5%**	
SSE	6.4%	
ENE	4.8%	
N	2.5%	
NE	2.5%	
NNE	2.2%	
WNW	2.0%	
NNW	1.2%	
NW	1.1%	

2.3.4. According to the experimental site wind availability study, it indicates that the annual prevailing winds for FLN NDA study area are dominated from North to East quadrant while prevailing summer winds are mainly coming from South to Southwest directions. Based on the frequency of occurrence for both Annual and Summer period and HPLB Technical Circular No. 1/06 on AVA, in total 12 wind directions are selected for this AVA study – N, NNE, NE, ENE, E, ESE, SE, S, SSW, SW, WSW and W. These prevailing winds contribute to 77.5% and 77.3% frequency occurrence for annual and summer conditions respectively.

3. AVA STUDY SCHEME COMPARISON

3.1. Study Scheme

3.1.1. This AVA study was carried out to assess the ventilation impacts of the following scenarios:

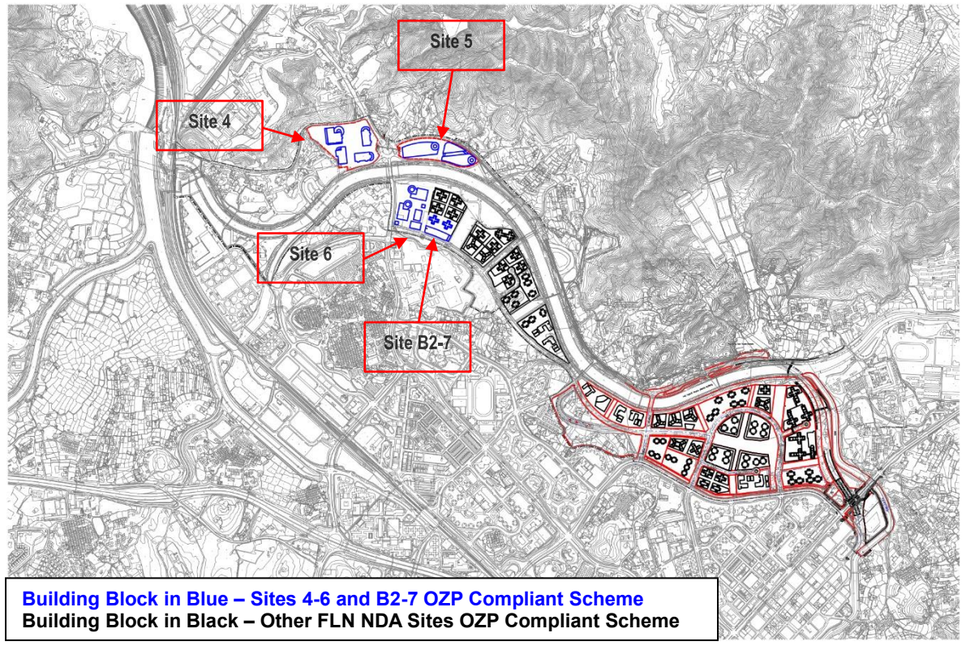
a) **Baseline Scheme –** This is to evaluate the ventilation performance of baseline condition which is the approved Fanling North OZP No. S/FLN/2, Planning Application No. A/KTN/54 and Planning Application No. A/FLN30 – OZP compliant scheme.

b) **Proposed Scheme –** This is to consider the ventilation impact of the development proposal of Sites 4 – 6 and Site B2-7.

3.2. Baseline Scheme

3.2.1. The layout plan of approved Fanling North OZP No. S/FLN/2, Planning Application No. A/KTN/54 and Planning Application No. A/FLN/30 is adopted as baseline scheme (OZP compliant scheme).

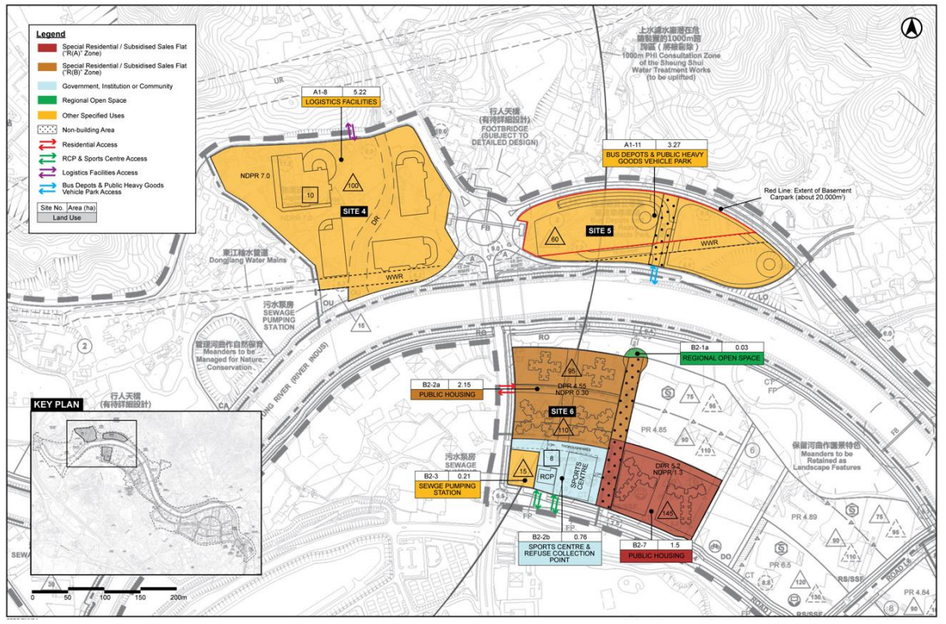
Figure 3.2 Layout of Baseline Scheme



3.3. Proposed Scheme

3.3.1. The development proposal for Sites 4 – 6 and Site B2-7 is shown as below.

Figure 3.3 Development Proposal for Sites 4 – 6 and Site B2-7



3.3.2. For development proposal of Sites 4 – 6 and Site B2-7, it has considered the specific location of each site in meeting special Government requests, increased housing supply and updated needs for GIC facilities and open space to cater for the population increase.

Table 3.3 Key Development Parameters for Development Proposal for Sites 4-6 and Site B2-7

Site	Land Use Under OZP	Proposed Land Use	Site Area (ha)	Baseline BH or Storeys	Baseline Plot Ratio	Proposed BH or Storeys	Proposed Plot Ratio
Site 4	G/IC (Government Reserve)	Logistics Facilities	5.22	40mPD	/	100mPD	NDPR: 7
Site 5	G/IC (Government Reserve)	Bus Depot & Public Heavy Goods Vehicle Park	3.27	37.5mPD	/	60mPD	/
Site 6	OU (Environmentally Friendly Transport System) and G/IC	Public Housing Sports Centre and RCP	2.15 0.76	30mPD 25 – 27mPD	/	95 – 110mPD 8 Storeys	DPR: 4.55 NDPR: 0.30
B2-7	Public Housing R(A)2	Public Housing R(A)6	1.5	120mPD	DPR: 4.00 NDPR: 1.00	145mPD	DPR: 5.20 NDPR: 1.30

Remarks: There is no plot ratio restriction/ proposal for Sites 4-6 in Baseline Scheme.

4. AVA Assessment Methodology

4.1. General

4.1.1. The AVA Study will follow the Technical Guide for AVA for the Developments in Hong Kong and the Technical Circular issued by the Housing, Planning and Lands Bureau and Environment, Transport and Works Bureau for AVA (No. 1/06). Key parameters recommended by the international good practice – Cost Action C14 "Impact of Wind and Storms of City Life and Built Environment" are followed and complied in this AVA.

4.2. CFD Modelling Tool and Model Setting

4.2.1. The numerical simulation involved complex 3-dimensional turbulence flow for the assessment area. The software used for this AVA-IS is STAR-CCM+.

4.2.2. The following CFD model settings and input parameters have been employed for the study.

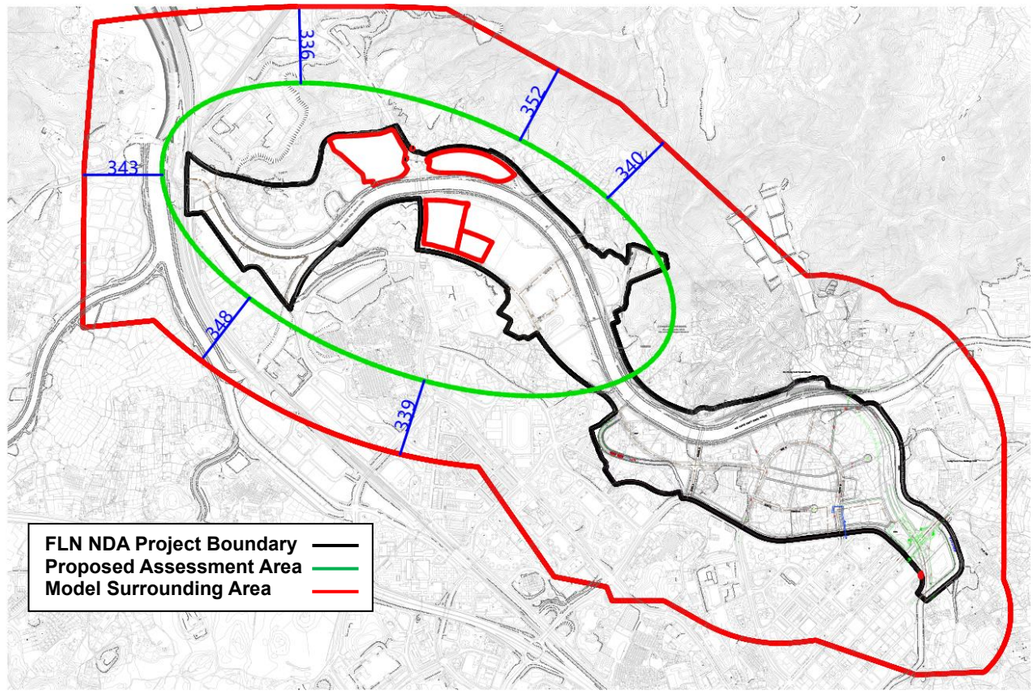
Table 4.1 CFD Model Settings

Parameters	Assumption and Settings
Turbulence Model	Revised k-ϵ models - Realizable k-ϵ model
Spatial Discretization	At least 2nd order
Convergence Factor	Not larger than 0.0005
Mesh Type	Prismatic mesh layers to be constructed to adjoining and near ground At least 3m above the ground (6 layers of 0.5m each)
Blockage Ratio	Less than 3%
Grid Expansion Ratio	Not larger than 1.3
Boundary Conditions	Upwind (windward): Velocity Inlet with respective wind profile Downstream (leeward): Outflow Lateral boundary: Symmetry Plane Top boundary: Symmetry Plane Ground: Wall Building Envelope: Wall
Wind Directions	12 wind directions as elaborated in Chapter 2.2
Vertical Wind Profile	Extracted from Investigation Report WWTF018-2010- Experimental site wind availability study for the North-East New Territories New Development Areas
Terrain and Domain Size	The computational domain size is approximate 6.8km(L) x 4.5km(W) x 1.5km(H).
Assessment Area	At least 1H from the subject sites (boundary of Sites 4 – 6 and Site B2-7). The maximum building height (H) in the project area in the proposed design is 145mPD.
Surrounding Area	Up to a perpendicular distance of 450m (~3H) from the entire FLN NDA boundary (more than 1H between the Assessment Area and Surrounding Area).

4.3. Model Area and Surrounding Area

4.3.1. With reference to the AVA technical guide, the surrounding area in the study shall include the site's surrounding environment, large structures and major topographies up to a perpendicular distance of 2H from the boundary of Sites 4 – 6 and Site B2-7 (H being the height of the tallest building on the project boundary which is around 145m). For the sake of a more accurate and precise modelling for AVA analysis, the surrounding area is constructed using the entire FLN NDA boundary area rather than the subject sites and extent further beyond the 2H of FLN NDA project boundary in order to taking into account of nearby prominent features and development in existing Fanling / Sheung Shui New Town area.

Figure 4.3-1 Surrounding Area covered in AVA

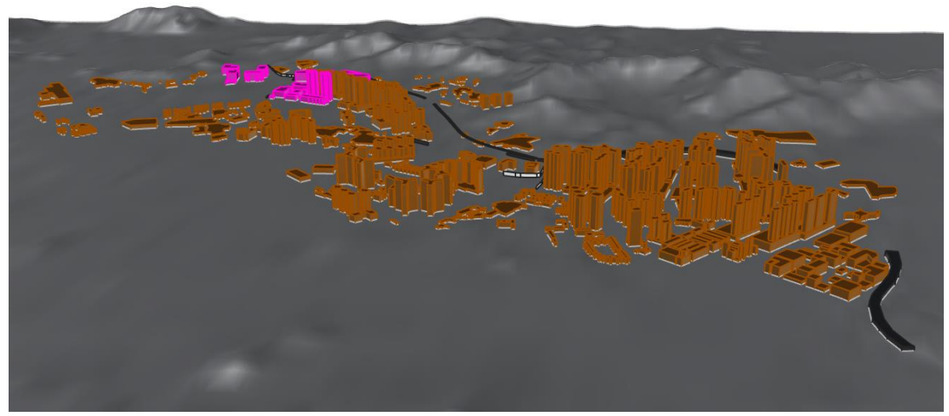
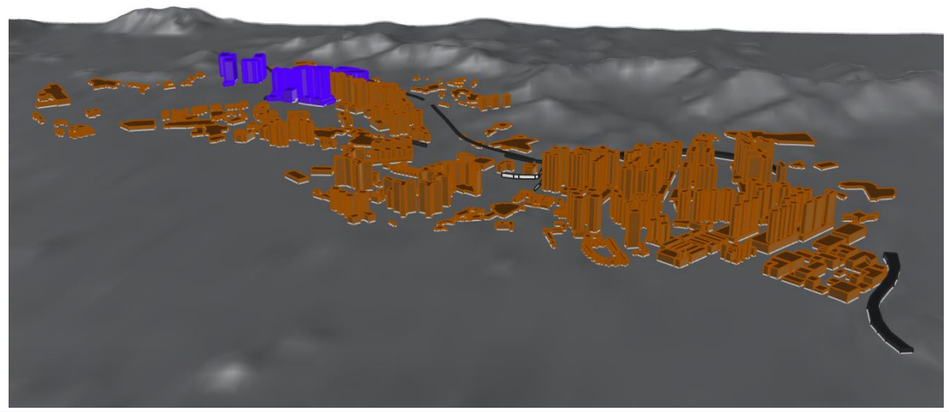


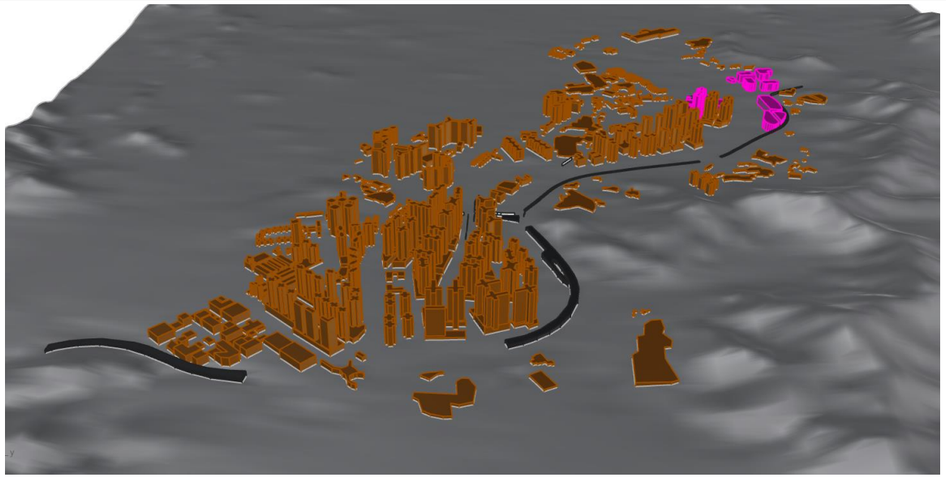
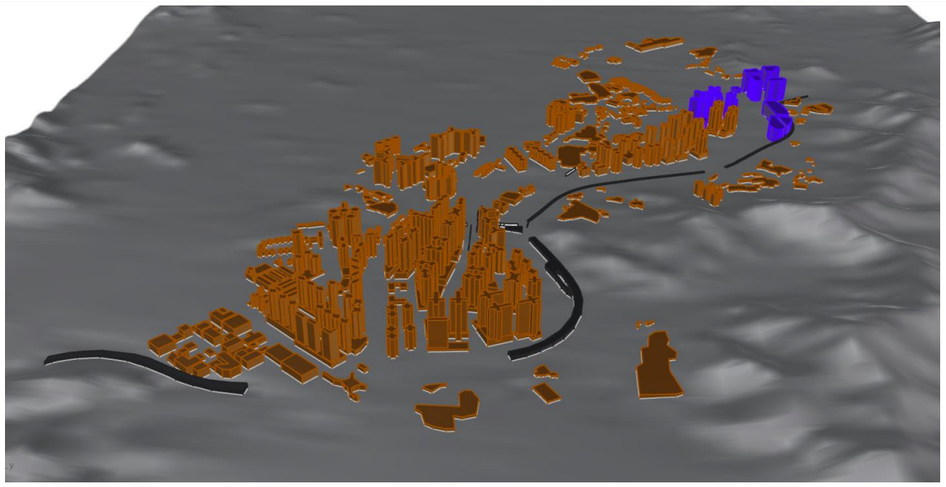
The distance between the Proposed Assesmsent Boundary and Model Surrounding Area is at least 1H (145m)

4.3.2. The data of the model including map and building top level were obtained from the Lands Department and Civil Engineering and Development Department (CEDD). CFD model is built to show the local topography and erection of the proposed development, under prevailing conditions. The size of CFD model will be around 6800m(L) x 4500m(W) x 1500m(H). Figure below shows the existing buildings and structures within the close proximity of the proposed development and the CFD Model Area including the subject building model.

Figure 4.3-2 CFD Model Area and Surrounding Area: 6.8km(L) x 4.5km(W) x 1.5km(H)

	Baseline
	Proposed

From North Perspective	
	Baseline
	Proposed

From East Perspective	
	Baseline
	Proposed

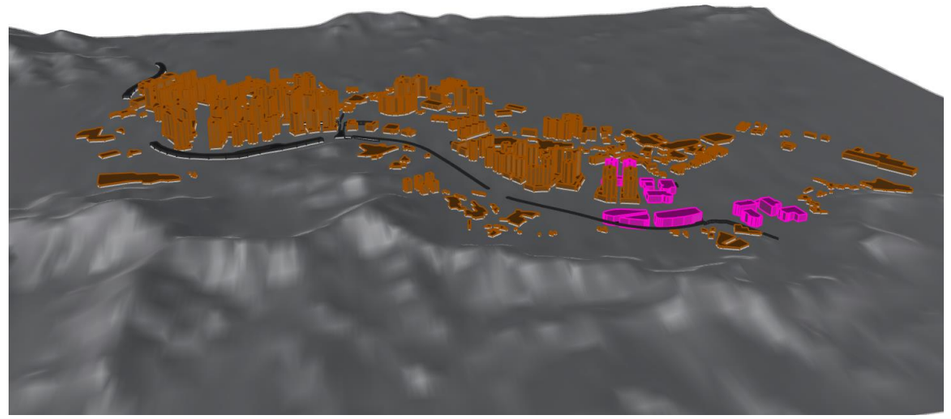
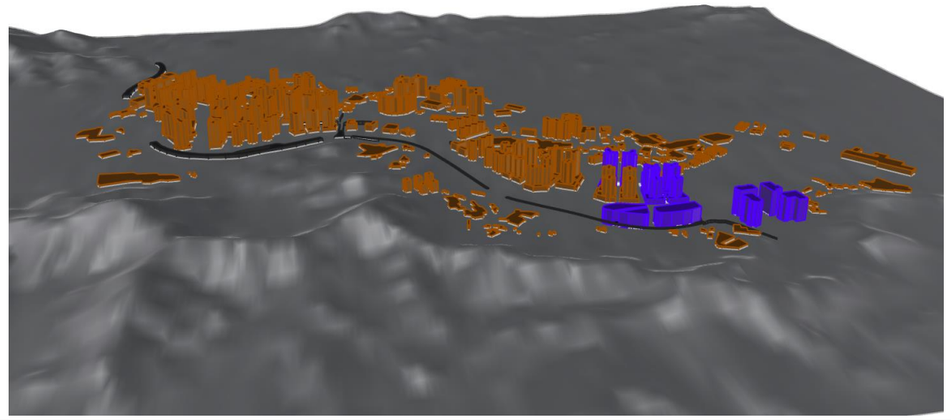
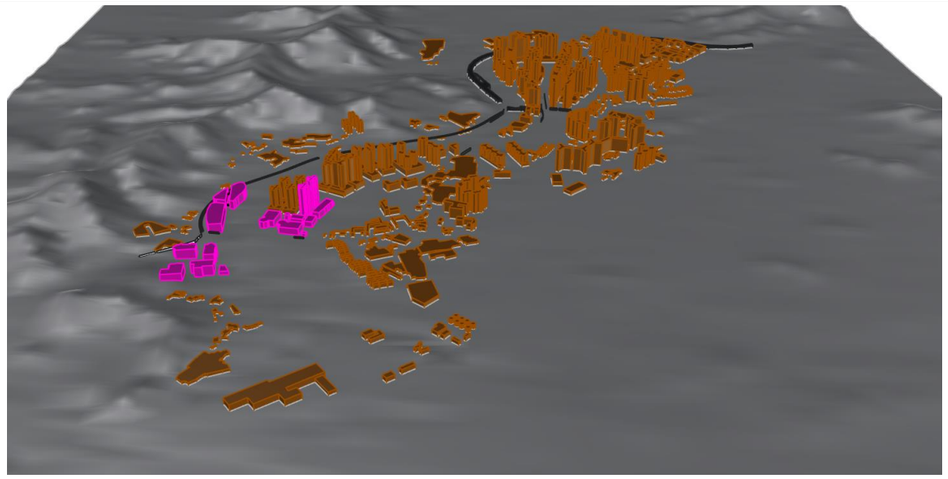
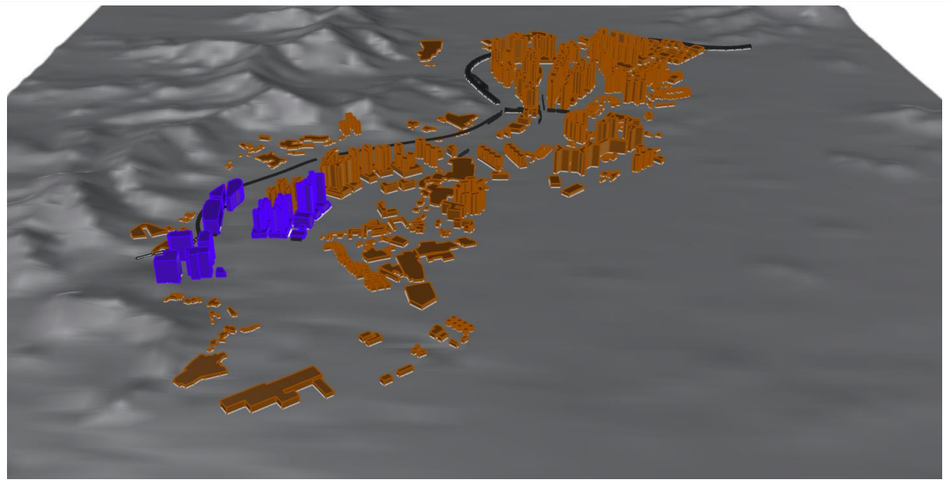
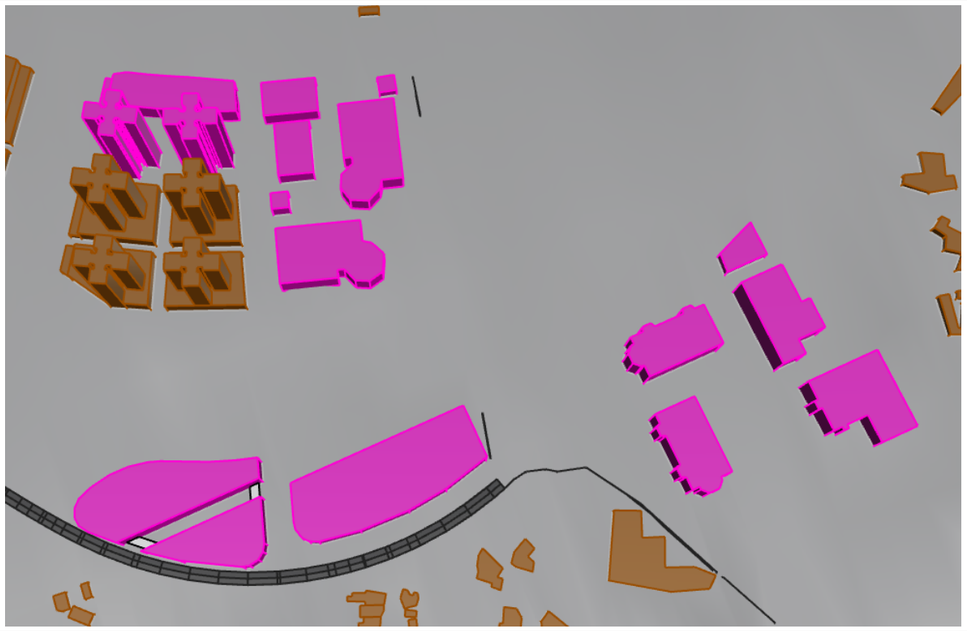
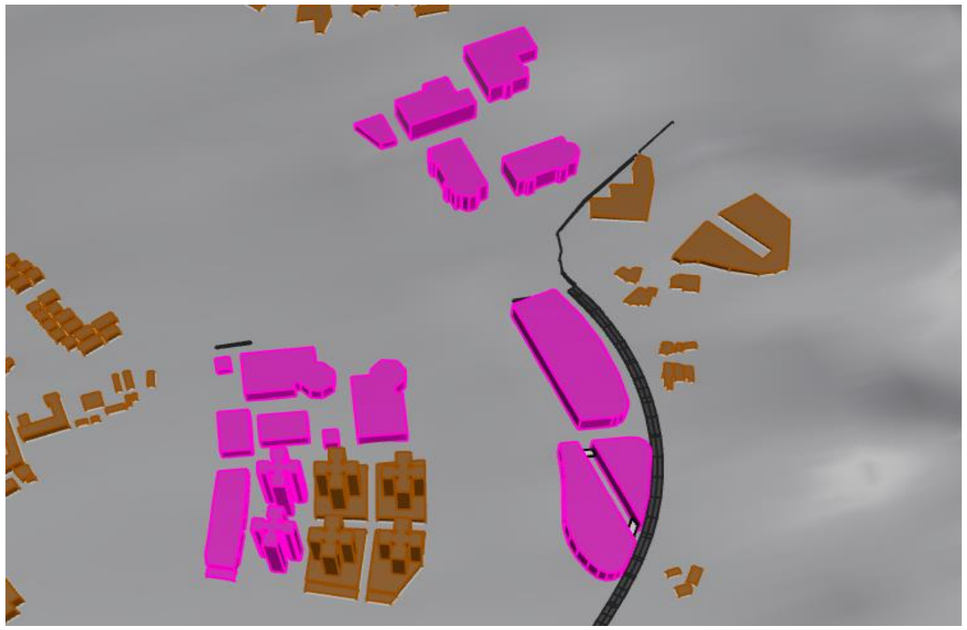
From South Perspective	
	Baseline
	Proposed

Figure 4.3-3 Zoom-in Model Views of Sites 4-6 and Site B2-7

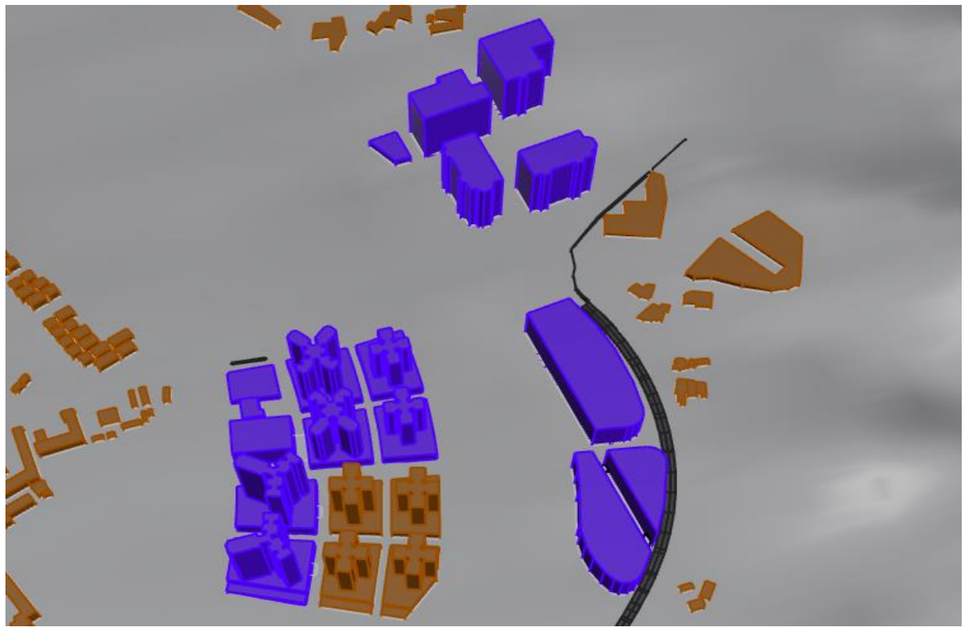
From West Perspective	
	Baseline
	Proposed

From North Perspective	
	Baseline
	Proposed

From East Perspective

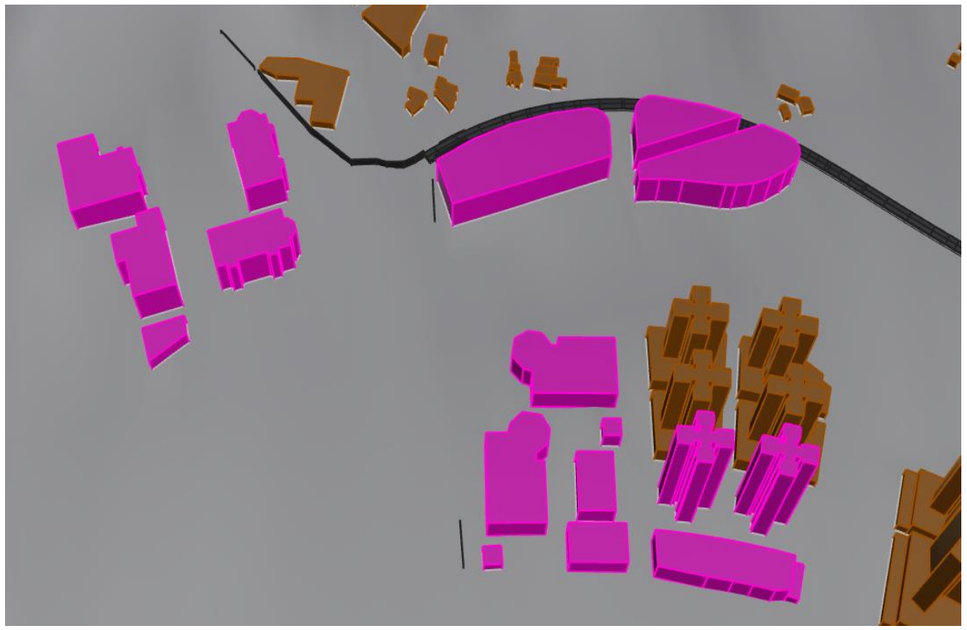


Baseline

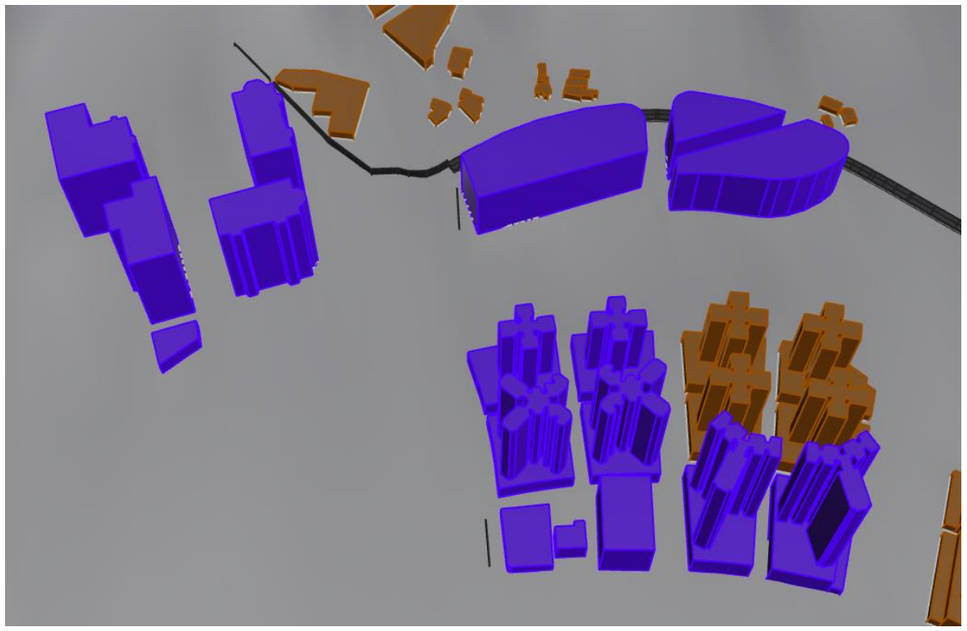


Proposed

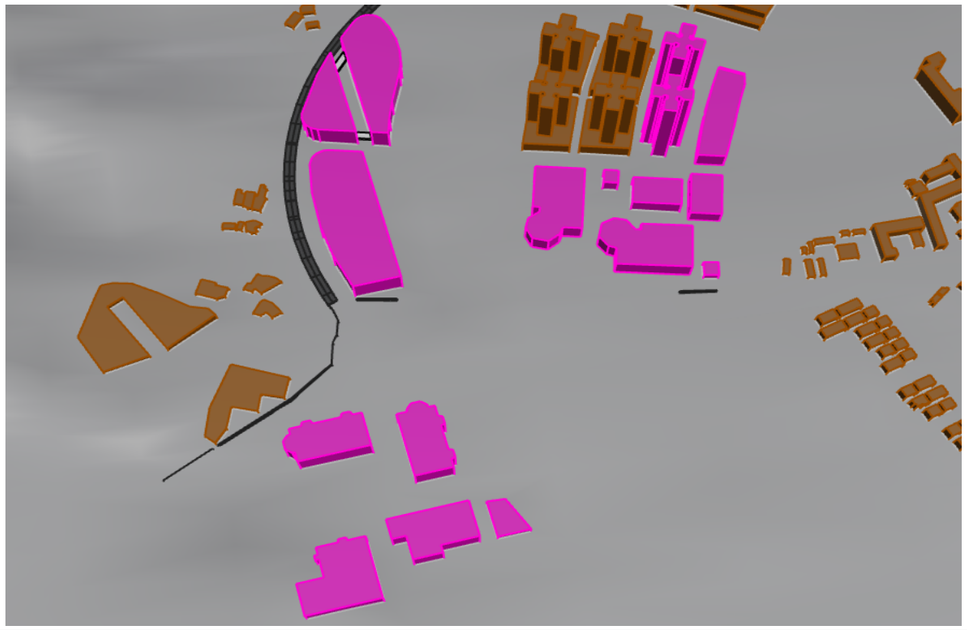
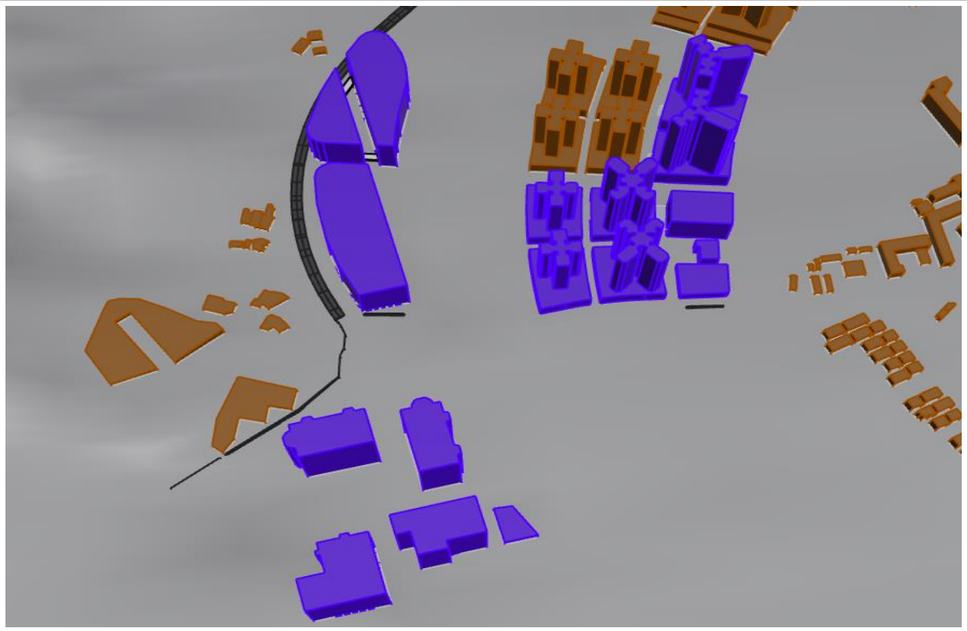
From South Perspective



Baseline

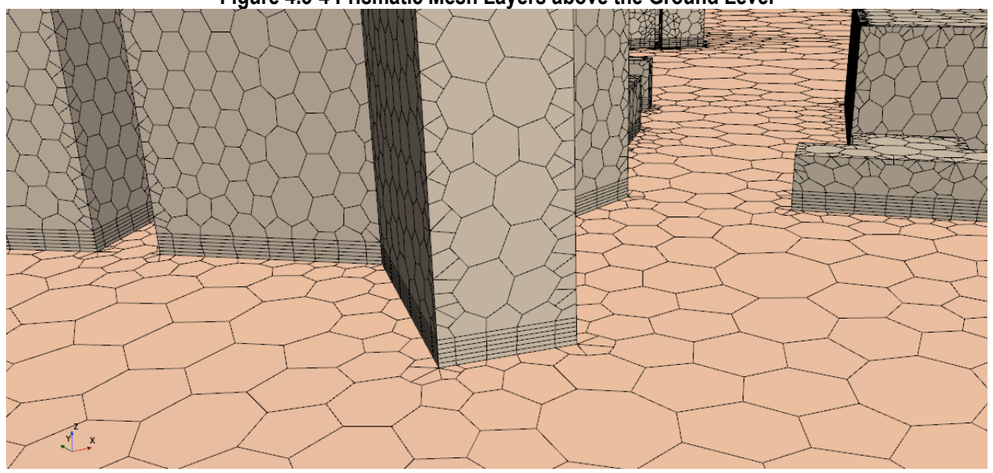


Proposed

From West Perspective	
	Baseline
	Proposed

4.3.3. Mesh setting with 6 layers of prismatic mesh layers of the computation model is extracted as below.

Figure 4.3-4 Prismatic Mesh Layers above the Ground Level



4.4. Assessment Area, Test Point and Assessment Parameters

4.4.1. As stated in AVA Technical Circular, Wind Velocity Ratio (VR) is defined as Vp/V∞ (velocity at pedestrian level/velocity at infinity) and is adopted as the indicator of wind performance enjoyed by pedestrians at particular levels, taking into account of surrounding buildings, topography and the project site. In addition, VR can also be used for the purpose of objective comparison between ventilation performances of various building-massing scenarios.

4.4.2. V∞ captures the wind velocity at the top of the wind boundary layer (500m) and is taken as the wind availability of the site. Vp captures the wind velocity at pedestrian level and is taken from CFD simulation results.

4.4.3. Local spatial average velocity ratio (LVR) is computed by analysing the group of overall test points and perimeter test points, and Site spatial average velocity ratio (SVR) is evaluated by considering perimeter test points only.

4.4.4. According to the AVA Technical Circular, the assessment area shall be at least 1H of the boundary of subject sites (which are the Sites 4 – 6 and Site B2-7). In view of the open nature of the site surrounding and the ventilation impact might beyond the 1H area, the assessment area is further enlarged at least 160m (>1H) perpendicularly distance from the site boundary north of Site 4 to the extended Assessment Area to cover potential sensitive areas located outside 1H boundary such as Sites B1-9, B3-6, B3-7 & B3-9 at western part of FLN NDA and Tin Ping Shan Tsuen and Sheung Shui Heung village development at existing Fanling / Sheung Shui New Town areas for AVA assessment purpose. The reference layout for site number is demonstrate at figure 4.4-1 at below and attached in Appendix E.

Figure 4.4-1 Reference Layout for Site Number

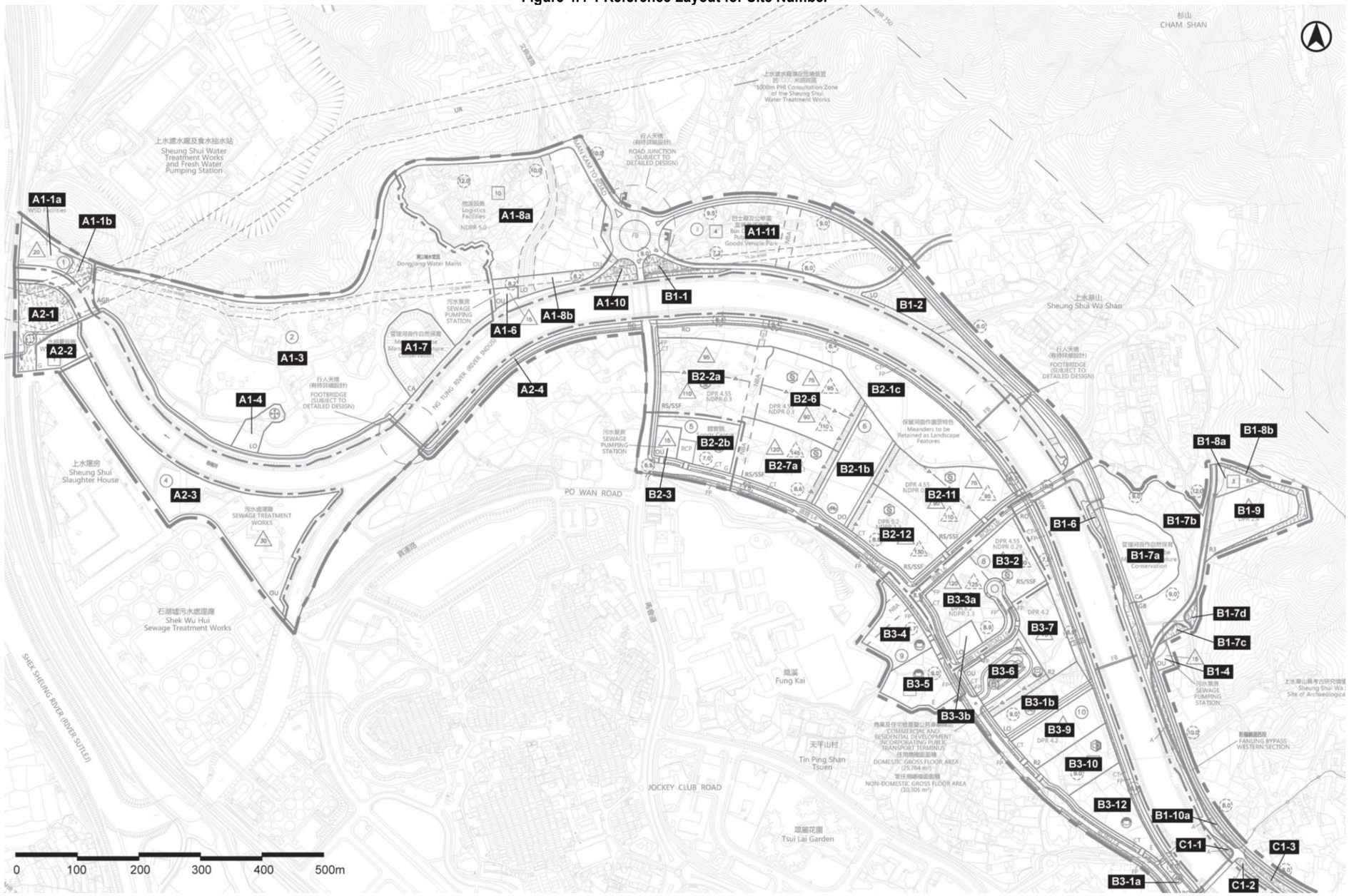
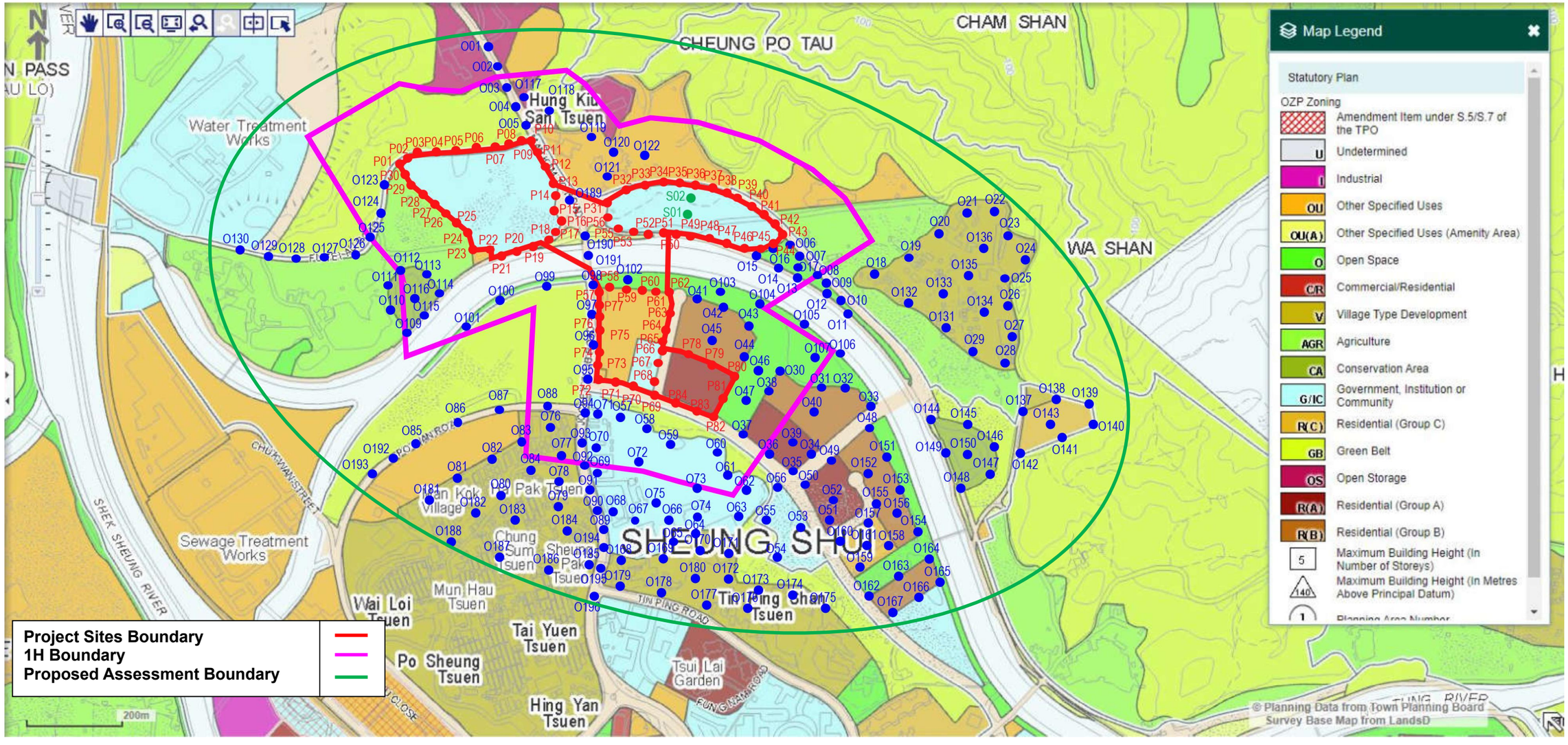


Figure 4.4-2 Test Point Locations in Assessment Area



4.4.5. For this study, perimeter test points are positioned on the project site boundary with 84 test points (with prefix “P”) assigned around the boundary of subject sites.

4.4.6. Overall test points (with prefix “O”) are evenly distributed in the open space, on the streets and public places of the project within the 1H of boundary line where pedestrians frequently access. Additional test points are also assigned at open space and pedestrian frequented areas between 1H boundary and proposed assessment boundary to further evaluate the impact of the development proposal to the neighbouring community. In total, 196 test points are designated within the AVA assessment area.

4.4.7. 2 special test points are designated in the non-building areas (NBAs) within the project site boundary to review the ventilation impact.

4.4.8. Test Points are generally grouped according to the following focus areas.

Table 4.2 Focus Area and its Test Points Designation

Focus Area	Relative Test Points
Subject Site (SVR)	
Site 4	P01 - P30
Site 5	P31 - P56
Site 6	P57 - P77
Site B2-7	P66 - P68, P78 - P84
Building Group / Sensitive Receiver	
Open Space (South-east of Site 5)	O06 – O17
Sheung Shui Wa Shan (North Section)	O18 – O29, O131 - O136
“R(B)” Site (B2-11)	O30 – O33, O38, O40
“R(A)2” Site (B2-12)	O34 – O37, O39
“R(B)” Site (B2-6)	O41 – O45, P78 – P80
Open Space in Planning Area 6	O46 – O47, O99 – O108
“R(B)” Site (B3-2)	O48, O151 - O152
“R(A)2” Site (B3-3a)	O49 – O52
“G/IC” Site in Planning Area 9	O53 – O56
Fung Kai School Group	O57 – O75
Sheung Shui Heung Village Development	O76 – O84, O181 - O188
Conservative Area with a study centre	O109 – O116
Hung Kiu San Tsuen	O117 – O122
"R(C)" Site (B1-9)	O137 – O143
Conservative Area east of Site B1-9	O144 – O150
“R(B)” Site (B3-7)	O48, O151, O153 – O156
"OU" Site (B3-6)	O157 – O161
“R(B)” Site (B3-9)	O162 – O167
Tin Ping Shan Tsuen	O168 – O180
Main Road	
Man Kam To Road	P10 – P13, O01 – O05, O94 – O98, O189 – O191
Po Wan Road	O85 – O88, O192 – O193
Jockey Club Road	O89 – O93, O194 – O196
Fu Tei Au Road	O123 – O130
Special Test Points	
NBA within Site 5	S01 – S02

5. KEY FINDINGS OF AVA STUDY

5.1. Wind Velocity Ratio Results

5.1.1. A total of 84 perimeter test points and 196 overall test points have been assigned to determine VRs for evaluating the ventilation performance of site boundary and frequently accessed pedestrian areas within close proximity. The VRs of these test points are summarized into SVR and LVR for further assessment.

5.1.2. SVR represents the average VR at the site boundary whilst LVR summaries the average VR of the overall wind environment within the assessment area. The SVR and LVR results are tabulated as follows.

Table 5.1-1 SVR and LVR under Annual and Summer Conditions

	Annual Prevailing Winds		Summer Prevailing Winds	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.26	0.26	0.23	0.24
LVR	0.23	0.23	0.21	0.21

5.1.3. The annual SVR for baseline and proposed schemes are the same with the value of 0.26 whilst the summer SVR are 0.23 and 0.24 respectively. The annual and summer LVR for baseline and proposed schemes are the same with 0.23 and 0.21 respectively.

5.1.4. Considering wind conditions on both annual and summer basis, both SVR and LVR would remain unchanged. The result above shows that the Proposed Scheme will be no worse off to both site and surrounding environment. The SVR is slightly improved in Proposed Scheme under the summer prevailing wind especially in S to W quadrant since the layout in more align with the S to W wind and the increase in the building height would facilitate the downwash wind to the site perimeter areas.

5.1.5. The result and average VR of different focus areas are tabulated below.

Table 5.1-2 Average VR of Focus Areas under Annual and Summer Conditions

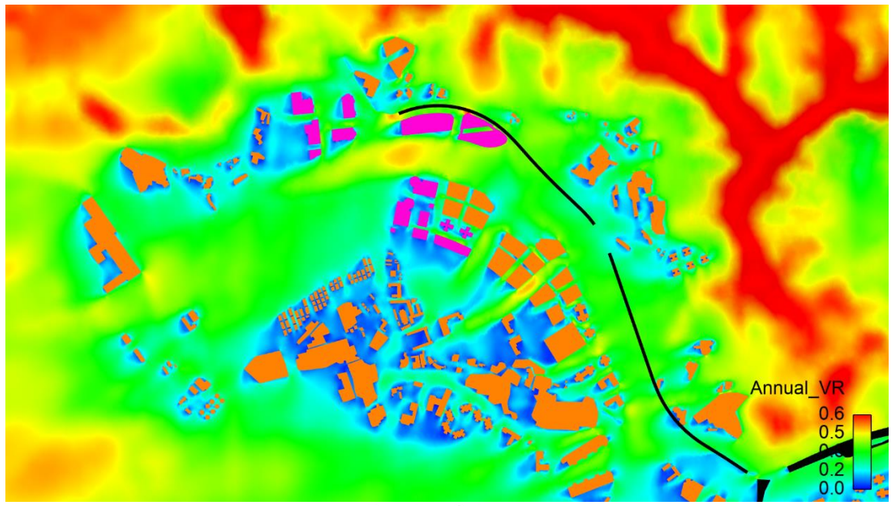
Area	Test Points	Annual VR		Summer VR	
		Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
Subject Site (SVR)					
Site 4	P01 - P30	0.23	0.27	0.21	0.24
Site 5	P31 - P56	0.34	0.30	0.31	0.29
Site 6	P57 - P77	0.19	0.20	0.17	0.17
Site B2-7	P66 - P68, P78 - P84	0.20	0.27	0.18	0.25
Building Group					
Open Space (South-east of Site 5)	O06 – O17	0.32	0.32	0.30	0.28
Sheung Shui Wa Shan (North Section)	O18 – O29, O131 - O136	0.20	0.21	0.14	0.14
"R(B)" Site (B2-11)	O30 – O33, O38, O40	0.24	0.24	0.20	0.20
"R(A)2" Site (B2-12)	O34 – O37, O39	0.33	0.35	0.26	0.29
"R(B)" Site (B2-6)	O41 – O45, P78 – P80	0.20	0.20	0.17	0.19
Open Space in Planning Area 6	O46 – O47, O99 – O108	0.32	0.34	0.27	0.27
"R(B)" Site (B3-2)	O48, O151 - O152	0.30	0.33	0.25	0.32
"R(A)2" Site (B3-3a)	O49 – O52	0.20	0.20	0.22	0.24
"G/IC" Site in Planning Area 9	O53 – O56	0.16	0.17	0.18	0.19
Fung Kai School Group	O57 – O75	0.17	0.18	0.15	0.17
Sheung Shui Heung Village Development	O76 – O84, O181 - O188	0.12	0.10	0.11	0.11
Conservative Area with a study centre	O109 – O116	0.21	0.22	0.26	0.23
Hung Kiu San Tsuen	O117 – O122	0.21	0.20	0.17	0.18
"R(C)" Site (B1-9)	O137 – O143	0.25	0.24	0.22	0.24
Conservative Area east of Site B1-9	O144 – O150	0.25	0.26	0.22	0.24
"R(B)" Site (B3-7)	O48, O151, O153 – O156	0.31	0.31	0.25	0.25
"OU" Site (B3-6)	O157 – O161	0.18	0.20	0.18	0.19
"R(B)" Site (B3-9)	O162 – O167	0.27	0.30	0.19	0.20
Tin Ping Shan Tsuen	O168 – O180	0.12	0.13	0.14	0.14
Main Road					
Man Kam To Road	P10 – P13, O01 – O05, O94 – O98, O189 – O191	0.28	0.29	0.24	0.24
Po Wan Road	O85 – O88, O192 – O193	0.24	0.17	0.20	0.18
Jockey Club Road	O89 – O93, O194 – O196	0.16	0.11	0.15	0.12
Fu Tei Au Road	O123 – O130	0.25	0.24	0.22	0.22
Special Test Points					
NBA within Site 5	S01 – S02	0.25	0.25	0.20	0.19

5.1.6. According to the above table, it is observed that the average VR is similar at sensitive receivers located in existing Fanling/ Sheung Shui new town area and nearby FLN NDA sites for both cases under annual and summer conditions. The proposed scheme would not cause significant ventilation impact to the existing built environment. Some of the sensitive receiver even show improvement in VR due to the wind enhancement phenomenon done by the development proposal in the study Sites.

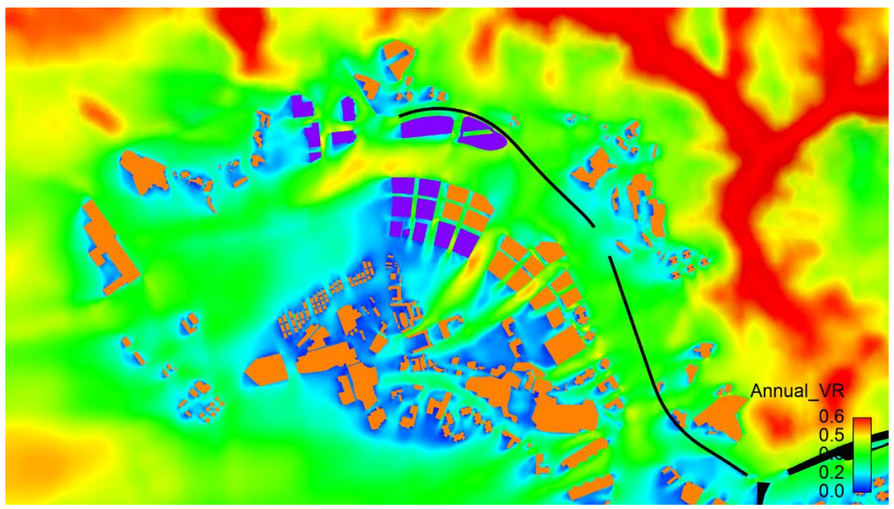
Annual Overall Pattern of Ventilation Performance

5.1.7. Considering wind conditions on an annual basis, nine wind directions were selected for AVA analysis, accumulating to 77.5% occurrence frequency. The overall pattern of ventilation performance is the integration of the effect of each individual wind. The dominant directions of the annual wind are E (23.4%) and ENE (15.1%)

Figure 5.1-1 Average VR Contour Graphs under Annual Condition



Baseline Scheme



Proposed Scheme

5.1.8. From the assessment result shown in Figure 5.1-1, generally both Baseline Scheme and Proposed Scheme show similar result, only minor deviation is observed in the few locations in the following.

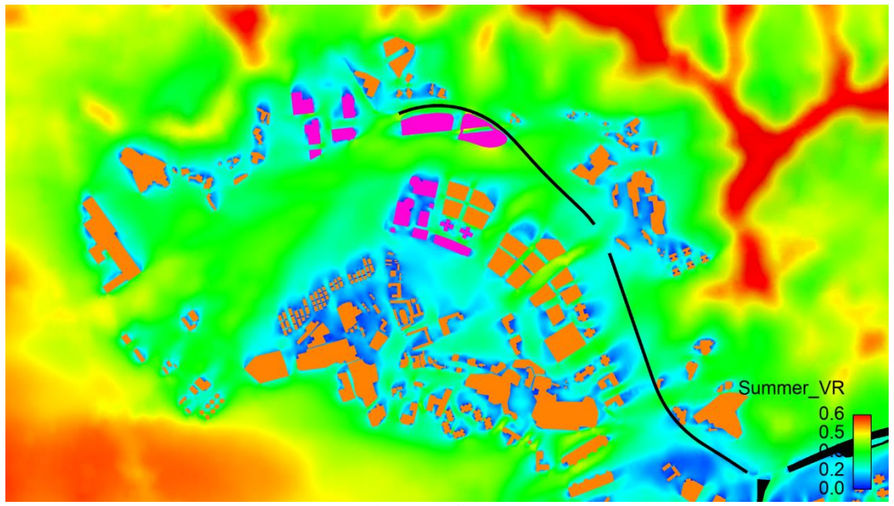
5.1.9. Larger wake area is observed at the immediate west and southwest of Site 6 as well as the "AGR" areas to the further southwest of the Site 6 and the southwest of Site B2-7 under the Proposed Scheme which has a relatively lower VR in that mentioned area since the ventilation is easterly prevailing wind dominate in annual condition. The intensification of Site 6 and B2-7 would inevitably causing lower in the "G/IC" area at immediate south of Site 6 and B2-7.

5.1.10. Relatively higher VR is observed at the Open Space in Planning Area 6 under the Proposed Scheme due to the fact that the increase in the building footprint would create a narrower pathway for the prevailing wind to pass through such that channeling effect is happen in the mentioned area and slightly increase in the VR.

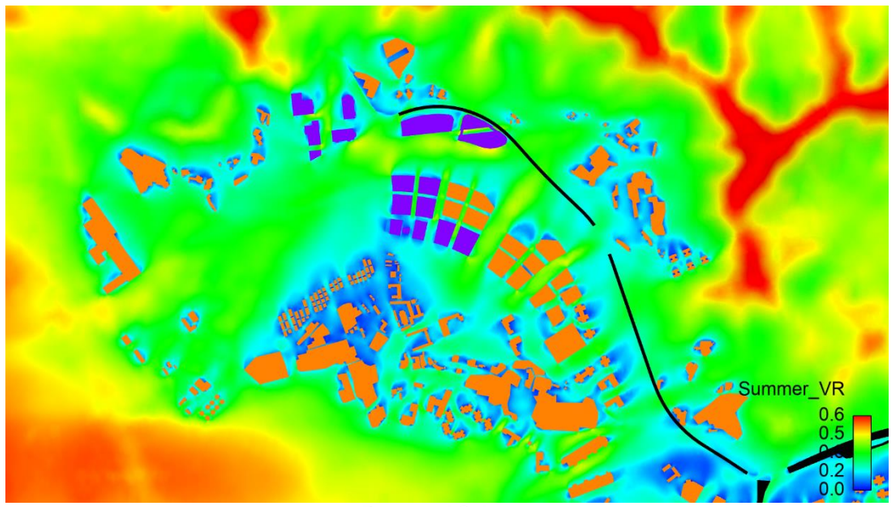
Suumer Overall Pattern of Ventilation Performance

5.1.11. Considering wind conditions on an annual basis, nine wind directions were selected for AVA analysis, accumulating to 77.3% occurrence frequency. The overall pattern of ventilation performance is the integration of the effect of each individual wind. The dominant directions of the annual wind are SW (14.5%), E (13.8%) and S (10.1%)

Figure 5.1-2 Average VR Contour Graphs under Summer Condition



Baseline Scheme



Proposed Scheme

5.1.12. Generally, similar overall VR result is observed for both Baseline Scheme and Proposed Scheme as the figure 5.1-2 illustrated. Only slightly increase in wake to the immediate southwest of the Site 6 under the Proposed Scheme. Thus, the intensification of the buildings in the Proposed Scheme will not cause significant impact.

5.1.13. The summer overall VR is slightly increased in the Site 4 and 5 since the increment of the building height could ensure the downwash wind from higher level and redirected the prevailing wind to the pedestrian level such that higher VR is observed under the Proposed Scheme.

5.1.14. Relatively higher VR is observed in the Ng Tung River between all three assessment Sites since the intensification carried out in the Proposed Scheme will create a narrower breezeway for the prevailing wind which will induce a channeling effect and enhancing in the VR in the mentioned area.

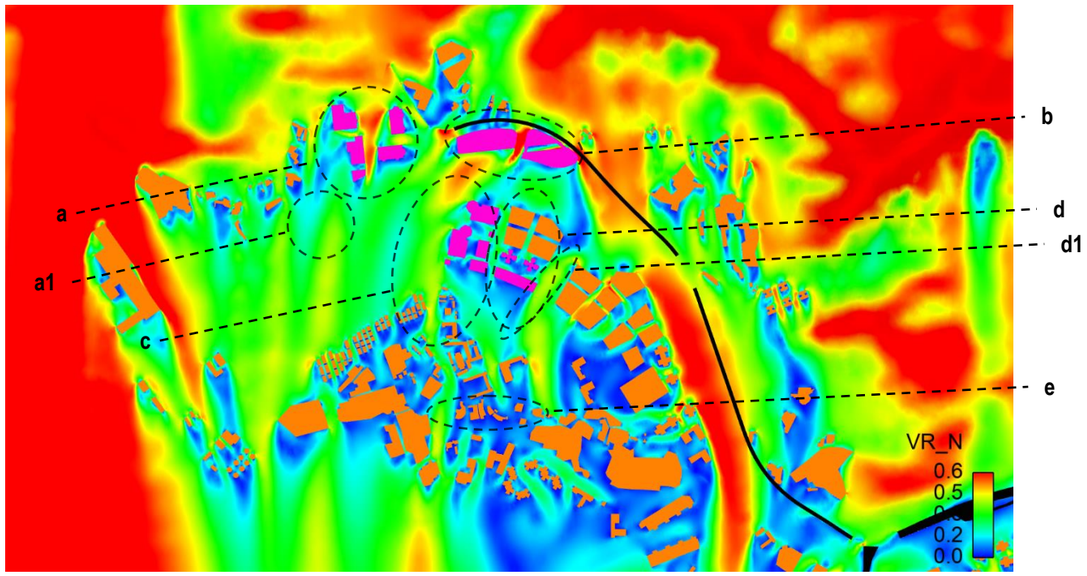
5.2. Directional Analysis

5.2.1. The wind environments as computed by CFD simulations are analysed and explained under each prevailing wind condition for both Baseline and Proposed schemes are provided in the following. A total 12 prevailing wind conditions (N, NNE, NE, ENE, E, ESE, SE, S, SSW, SW, WSW and W) are studied in this section.

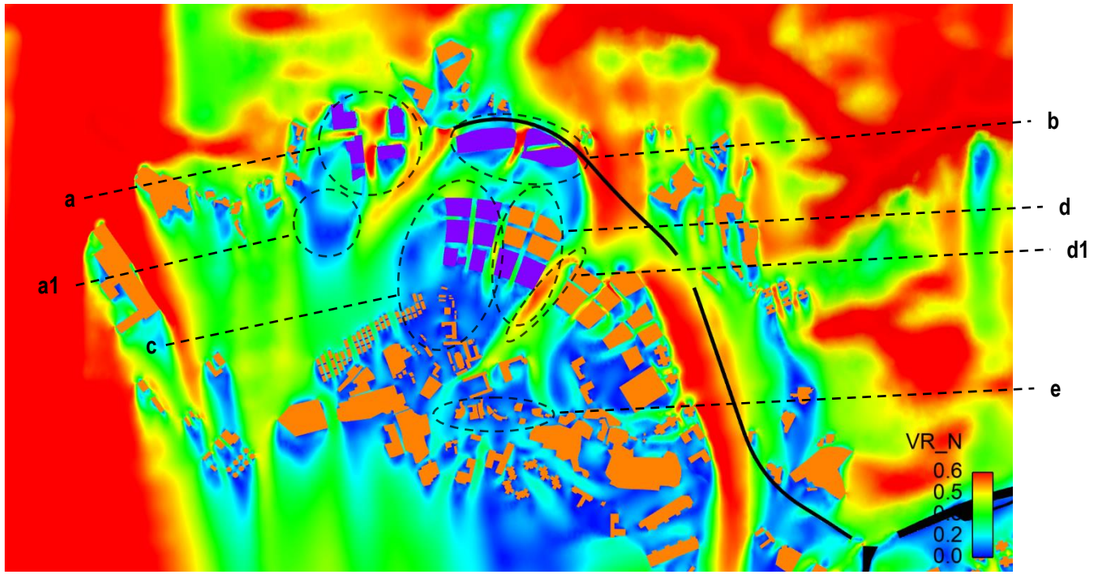
5.2.2. N Wind Condition (Annual: 12.1%)

Figure 5.2-1 Graphical Illustration under N Wind Condition

Baseline Scehme



Proposed Scheme



a) Site 4 is situated at the windward side under the northerly annual prevailing wind direction. Although the height of logistics facilities in Site 4 are increased from 40mPD in Baseline Scheme to 100mPD in Proposed Scheme, the local VR of Site shows similar result for both Baseline Scheme and Proposed Scheme. However, the relaxation in the building height in Site 4 in Proposed Scheme would induce a larger wake at the south direction of Site 4, and as a result, a slightly lower VR is observed at the conservation area (indicated as a1 in the figure) located at the southwest direction of Site 4.

b) The Bus Depot & Public Heavy Goods Vehicle Park in Site 5 is increased from 37.5mPD to 60mPD in the Proposed Scheme which inevitably lead to a minor decrease in the local VR in Site 5 and the area at immediate south of Site 5 comparing with the Baseline Scheme. A 20m wide NBA running from north to south direction is preserved in the middle of Site 5 in both Baseline and Proposed Scheme as a mitigation measure. The prevailing wind could be recovered at the Ng Tung River before entering Site 6 and Site B2-7 at the leeward side as the simulation result demonstrated. Thus, no significant impact would be done to the surrounding environment. Also, the slightly enhancement in the VR is observed in the Proposed Scheme at Man Kam To Road that between Site 4 and 5 due to the channeling effect.

c) Site 6 is located at the south of Site 5 which is in the downstream region under the northerly annual prevailing wind direction. The ventilation impact due the increment of buildings in Site 5 could be minimized by the 20m NBA as mentioned in previous paragraph. A relatively lower local VR in Site 6 is obtained due to the alternation of the building types and height in Site 6 in Proposed Scheme. A relatively lower VR is observed at the Fung Kai School Groups and Sheung Shui Wai Village at the “G/IC” and “V” area that located at the south of Site 6 in Proposed Scheme. The alternation of the intended development would unavoidably lead to a decrease in VR to the surrounding environment due to the building height is increased approximately 3 times than the Baseline Scheme.

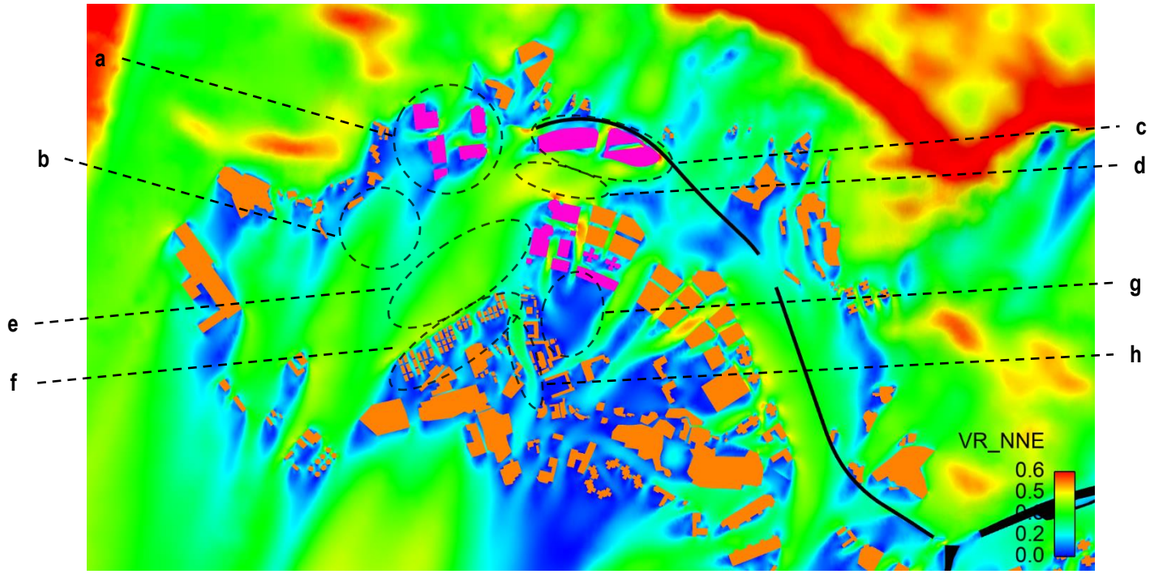
d) Despite the increment of building height in Site B2-7 is increased from 120mPD to 145mPD in the Proposed Scheme, similar local VR is illustrated. The increase in the building height would generate a larger wake at the “GB” and “G/IC” area at immediate south of Site B2-7 and as a result, a lower VR is observed. On the other hand, a slightly increase in VR is obtained at the Open Space in Planning Area 6 that at the immediate east direction of Site B2-7 (indicated as d1 in the figure) in Proposed Scheme because of the induced channeling effect caused by the intensification of development scheme in Site B2-7.

e) Variation of wind VR is observed at the downstream Tin Ping Shan Tsuen between Baseline Scheme and Proposed Scheme. For the eastern edge of the Tin Ping Shan Tsuen, slightly decline in the wind VR under the Proposed Scheme due to the enlarged wake induced by the intensification of the Site 6 and B2-7. However, slightly improvement in the middle part of the Tin Ping Shan Tsuen under the Proposed Scheme since it benefits from the strengthened channeling effect brings from the increasing in building footprint of Site B2-7.

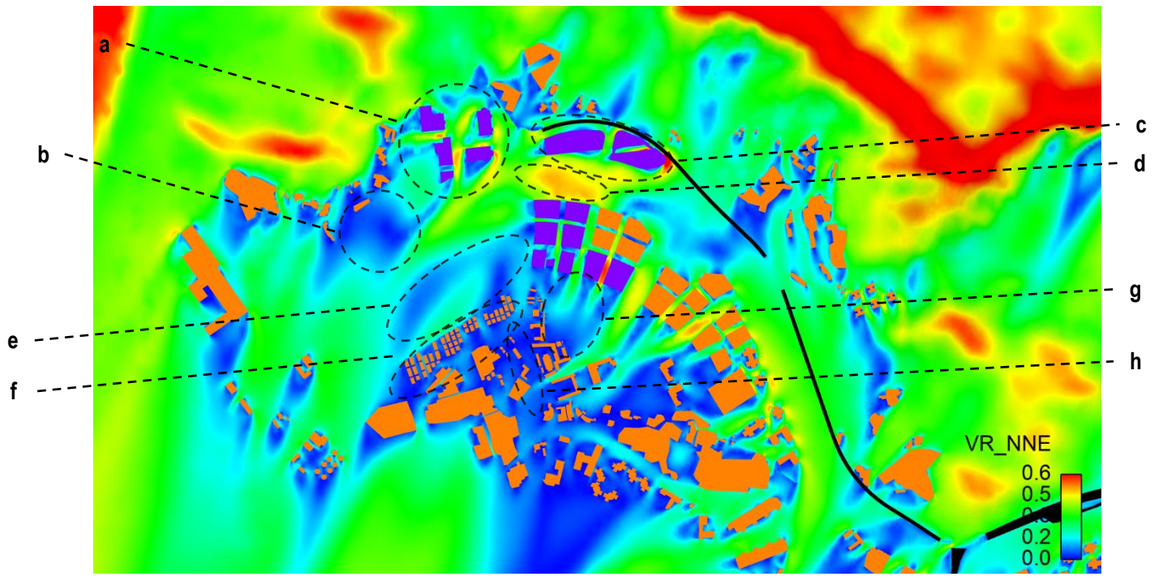
5.2.3. NNE Wind Condition (Annual: 8.3%)

Figure 5.2-2 Graphical Illustration under NNE Wind Condition

Baseline Scehme



Proposed Scheme



a) A slightly improvement in the Local VR in Site 4 is observed in the Proposed Scheme under the NNE annual prevailing wind due to the stronger downwashing effect is induced by the increment of the building height in Proposed Scheme. Thus, a better ventilation performance would be expected at the pedestrian level within Site 4 in Proposed Scheme when comparing to the Baseline Scheme.

b) The conservation area in Planning Area 2 is located the near southwest of Site 4 which is downstream area under the NNE prevailing wind direction. A declination of the VR in the Proposed Scheme is observed since the a larger wake is casted on the mentioned area that caused by the increase of the building height of Site 4 in the Proposed Scheme from 40mPD to 100mPD.

c) Similar local VR is illustrated in the Site 5 in both Baseline Scheme and Proposed Scheme. A stronger corner acceleration is occurred at the building at the western part in Site 5 in the Proposed Scheme by increasing the building height. Thus, a improve of VR is observed at the mentioned area.

d) Improvement in wind VR is observed in the circled Ng Tung River is observed in Proposed Scheme under the NNE direction. The increase in the building height in Site 6 in Proposed Scheme will generate a stronger downwashing effect under the NNE wind that skimming from 5. Therefore, better ventilation performance would be expected at the circled region in the Proposed Scheme.

e) Decrease in wind VR is observed at the circled “GB” area in Planning Area 33 that located at the downstream region immediate south-west of Site 6. The increase of the building height in Site 6 in Proposed Scheme will induced a large wake to the downstream area which explain the declination of ventilation environment of the ”GB” area.

f) Further to the previous paragraph, the increasing in the aerodynamic blockage in Site 6 under the Proposed Scheme would inevitably lead to a slightly decline of the wind VR in Sheung Shui Heung Village Development which at the leeward side.

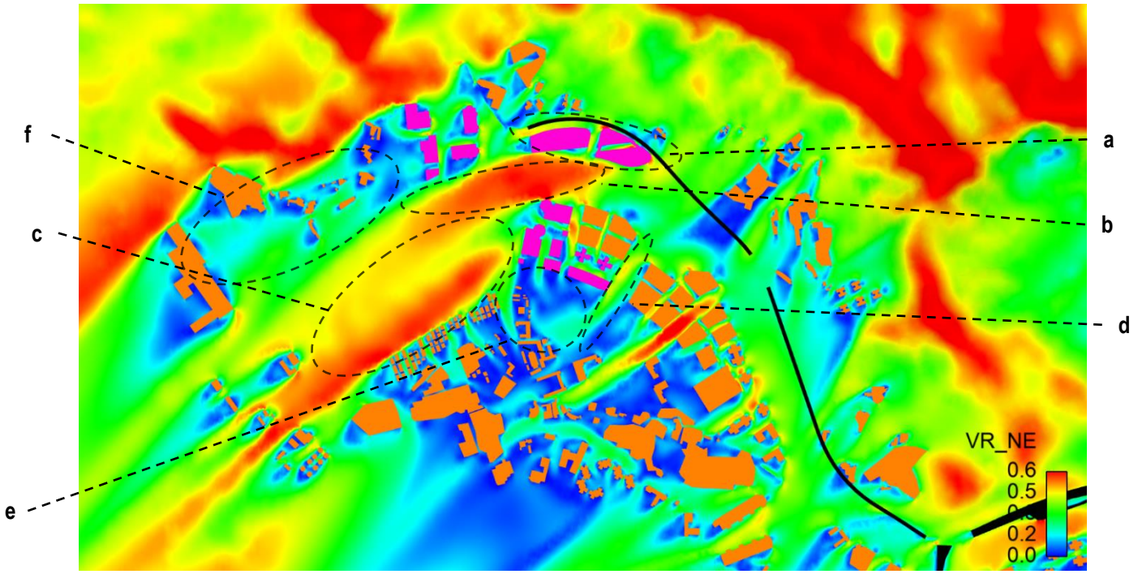
g) A slightly improvement of wind VR is observed at the Fung Kai School Groups (“G/IC” area) in Proposed Scheme that located at the leeward south direction of Site 6 and B2-7 under the NNE prevailing wind. The layout is more aligned to the NNE wind in the Proposed Scheme such that the prevailing could penetrate the buildings in Site 6 and B2-7 and reaches the downstream Fung Kai School Groups.

h) Similar to Sheung Shui Heung Village Development mentioned in f), the downstream Jockey Club Road shows significant changes in wind VR under the Proposed Scheme which is the result of the intensification in the development of Site 6.

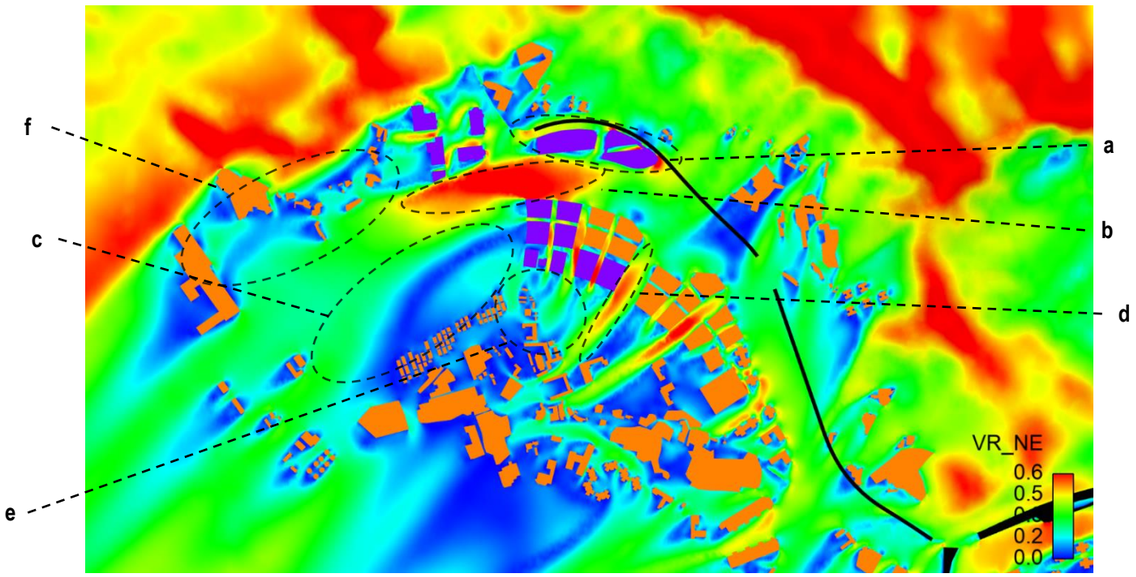
5.2.4. NE Wind Condition (Annual: 8.8%)

Figure 5.2-3 Graphical Illustration under NE Wind Condition

Baseline Scehme



Proposed Scheme



a) Site 5 is located at the windward side under the NE annual prevailing wind direction such that similar local wind VR is shown under both Baseline and Proposed Scheme. Stronger corner acceleration effect is occurred in the building at the east direction in Site 5 under the Proposed Scheme due to the increment of the building height. Thus, the wind VR is slightly improved near the east building at Site 5.

b) The wind VR at circled region in Ng Tung River is slightly increased in the Proposed Scheme. The building footprint of Site 6 is increased in Proposed Scheme which result in narrower the Gap between Site 5 and 6, stronger channeling effect is induced by the reduction of building separation of the mentioned sites. Thus, the wind is more converge in the circled region of Ng Tung River and higher VR is observed in the Proposed Scheme.

c) An obvious deterioration is demonstrated along the downstream “GB” area in Planning Area 33 and the northern part of Shueng Shui Village in that located at near southwest of Site 6 under the Proposed Scheme. It is result of the building intensification of Site 6 which create a large wake to the southwest of Site 6 under NE prevailing wind. The ventilation performance at leeward side Sheung Shui Wai Village would be unavoidably decreases under the Proposed Scheme of Site 6 and NE prevailing wind.

d) A slightly enhancement of the wind VR is observed in Open Space in Planning Area 6 near east of Site B2-7 under the Proposed Scheme, the building footprint and maximum building height is increased. The increment of the building footprint will lead to narrower the gap between Site B2-7 and “R(A) II” Sites in Planning Area 6, and as a result, stronger channeling effect is induced in the gap under the Proposed Scheme.

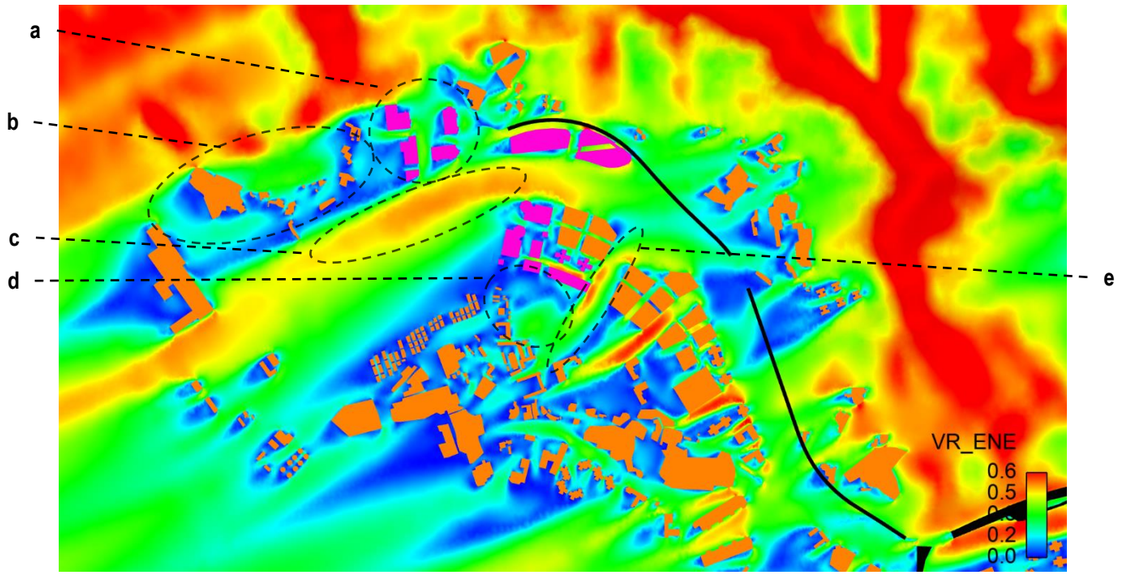
e) Fung Kai School Groups in G/IC area at immediate south of Site 6 and B2-7 in in leeward side under the north-easterly annual prevailing direction. A slightly improved in wind VR is observed under the Proposed Scheme since the development layout is more align the prevailing wind direction comparing to the Baseline Scheme. As a result the ventilation performance is enhanced in the mentioned area.

f) A larger wake is observed to the immediate southwest of Site 4 under the Proposed Scheme which will lead to a decrease in VR at that “AGR” area. The mentioned area is situated at the southwest of Site 4 and it is in downstream under the ENE prevailing wind as a result, the increasing in building height of Site 4 under the Proposed Scheme will inevitably affect the ventilation performance of the “AGR” area.

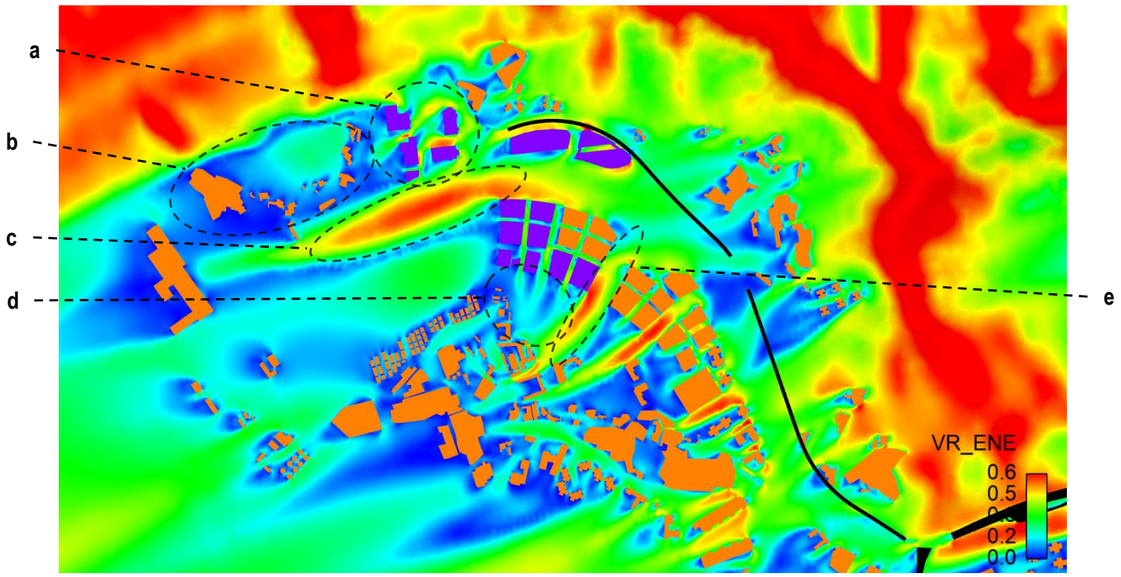
5.2.5. ENE Wind Condition (Annual: 15.1%)

Figure 5.2-4 Graphical Illustration under ENE Wind Condition

Baseline Scehme



Proposed Scheme



a) Site 4 is located at the near southwest of the upstream Hung Kiu San Tsuen in “OU” area such that Site 4 is in downstream area under the ENE annual prevailing wind direction. Improvement of wind VR is observed at Site 4 under the Proposed Scheme due to the greater downwashing effect occurred when increasing the maximum building height in the Proposed Scheme.

b) A decrease in wind VR is observed at the downstream “AGR” area at Planning Area 2 situated at the immediate south-west direction of Site 4 under the Proposed Scheme. The maximum building height is extended form 40mPD to 100mPD under the Proposed Scheme which increased the areo-dynamic blockage for the wind to pass through. Thus, a larger wake is induced by the relaxation of the building height and lead to a decline in the wind performance in the “AGR” area.

c) A relatively higher wind VR is obtained at the circled part of Ng Tung River in Proposed Scheme when comparing to the Baseline Scheme. The building footprint is increased in Site 6 under the Proposed Scheme which will narrow down the separation of buildings in Ste 5 and 6 and a stronger channeling effect is generated. Thus, the ventilation performance is slightly better at the circled area under the Proposed Scheme.

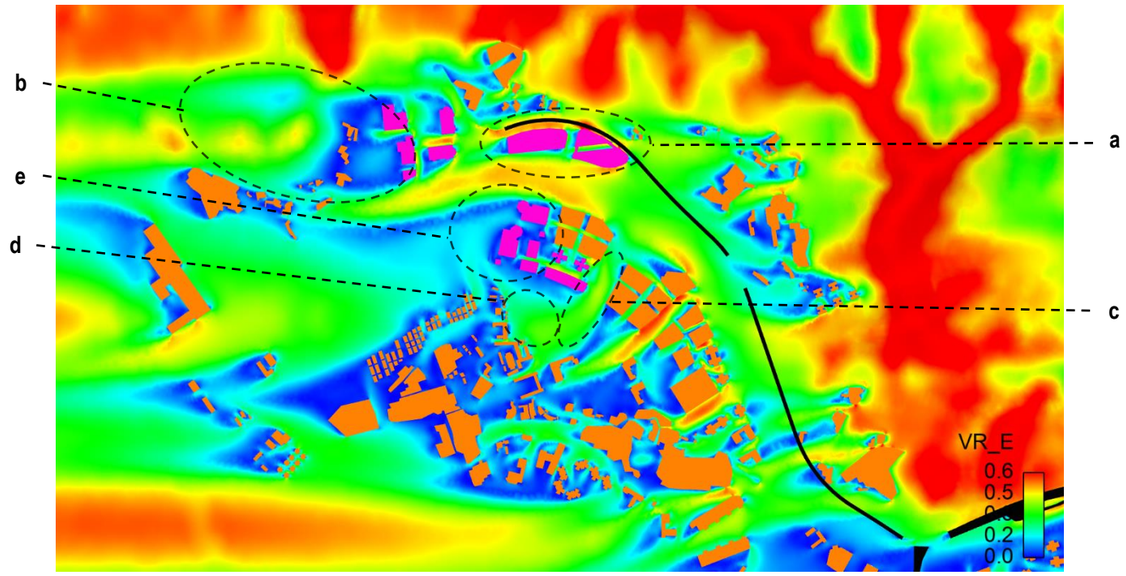
d) The downstream Fung Kai School Groups in “G/IC” area is located near the south-west of Site 6 and B2-7 and shows deterioration under the Proposed Scheme. In the Proposed Scheme, both the building footprint and maximum building height is increased comparing with the Baseline Scheme, a larger wake would be created by increasing the areo-dynamic blockage of Site 6 and B2-7. Thus, the ventilation environment would be decline under the Proposed Scheme.

e) An improvement of the wind VR is obtained at Open Space in Planning Area 6 under the Proposed Scheme and ENE prevailing wind. The building footprint is increased in the Proposed Scheme compares to the Baseline Scheme. The shrinkearn of the buildings separation between Site B2-7 and “R(A) II” Sites in Planning Area 6 would enhance the channeling effect at the gap and result in an increase in the VR.

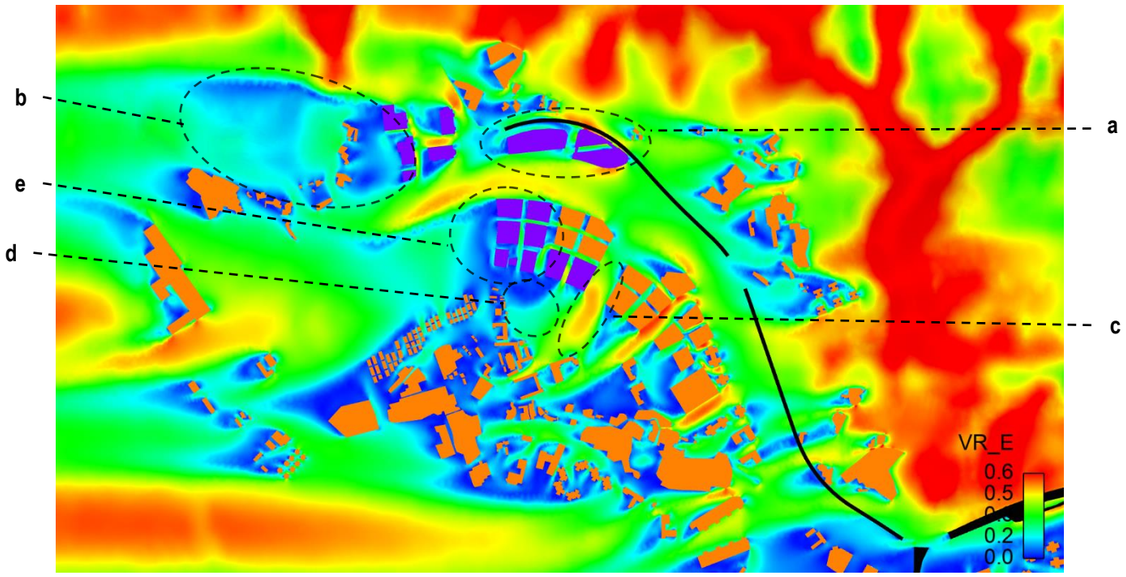
5.2.6. E Wind Condition (Annual: 23.4%; Summer: 13.8%)

Figure 5.2-5 Graphical Illustration under E Wind Condition

Baseline Scehme



Proposed Scheme



a) Site 5 is situated at the upwind region under the easterly prevailing wind direction, the increasing of the maximum building height in Site 5 would lead to a slightly decline of the local wind VR in Site 5 since the building is arranged in series with the easterly prevailing wind direction and as a result, the increase in maximum building height would cause a large wake to the west building in Site 5 and decrease the local wind VR.

b) An enlarged wake area is observed in downstream “AGR” area in Planning Area 2 and the “GB” area at the immediate east and north-east of Site 4 under Proposed Scheme. The maximum building height is increased from 40mPD to 100mPD in the Proposed Scheme which will lead to a decrease in wind quality to the downstream area. Thus, the ventilation environment would be decreased in the mentioned area.

c) A slightly enhancement of wind VR is observed at the Open Space in Planning Area 6 between the Site B2-7 and “R(A) II” site in Planning Area 6 under the Proposed Scheme. The increases in the building height from 120mPD to 145mPD in Site B2-7 would induce stronger downwashing effect when the prevailing wind enter Site B2-7 after skimming over the R(A) II” site in Planning Area 6.

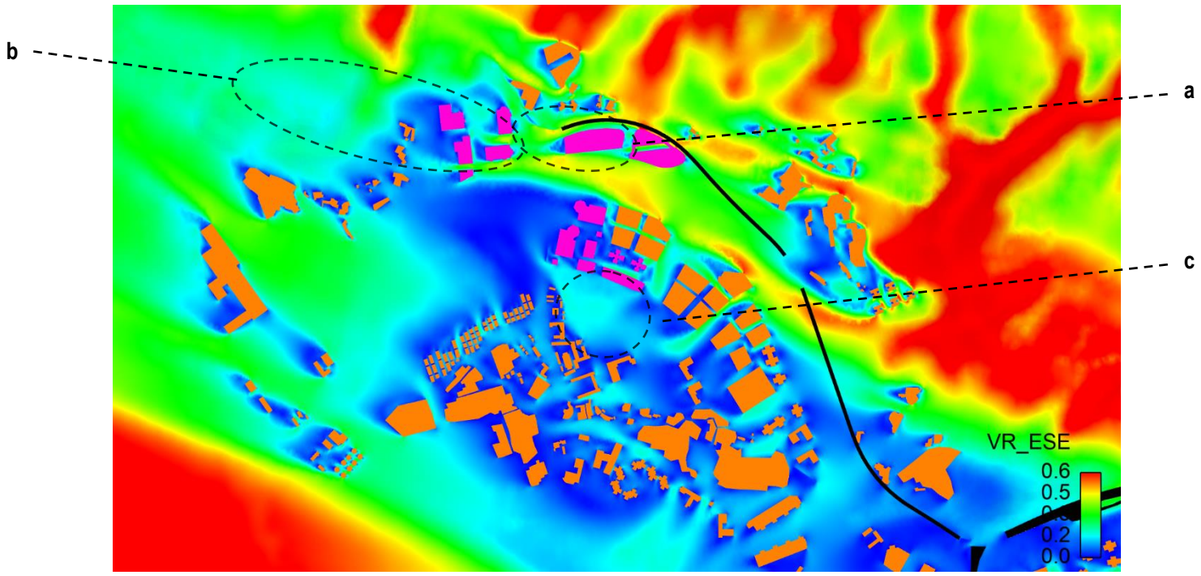
d) The wind VR of downstream circled “G/IC” area located at immediate south of Site 6 and B2-7 is slightly decreased under the Proposed Scheme. The maximum building height of Site 6 and B2-7 is increased in the Proposed Scheme which will increase the areo-dynamic blockage for the prevailing wind to reaches the downstream area.

e) An increase in wake is observed at the immediate west of Site 6 due the increase in the building height under the Proposed Scheme which is unavoidably will enlarge the wake at the downstream area.

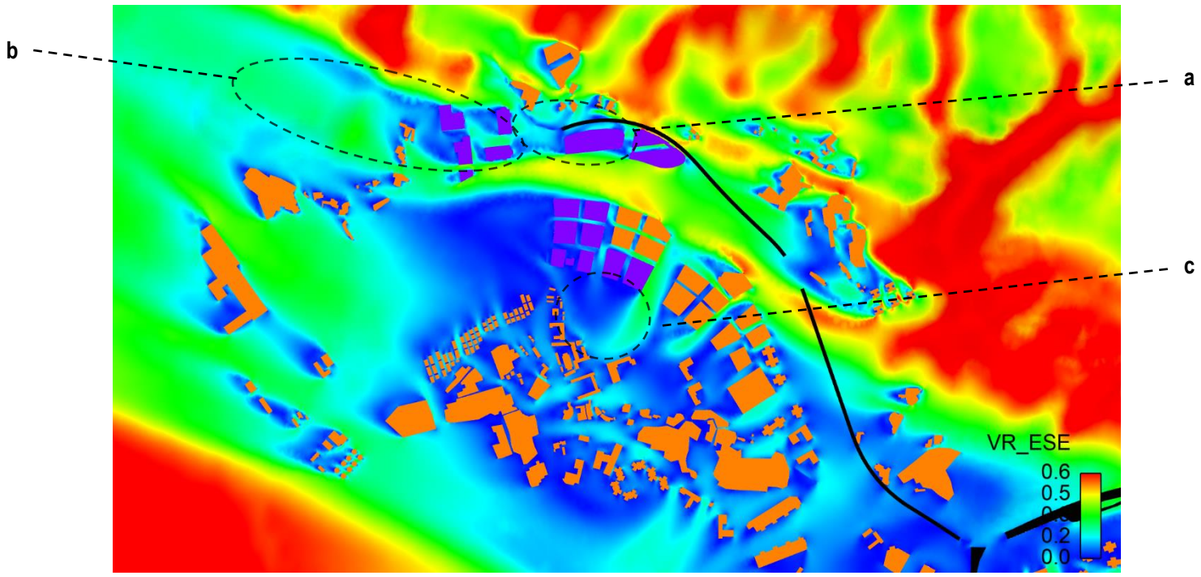
5.2.7. ESE Wind Condition (Annual: 4.9%; Summer: 7.9%)

Figure 5.2-6 Graphical Illustration under ESE Wind Condition

Baseline Scehme



Proposed Scheme



a) The circled building in Site 5 shows decline in wind VR under the Proposed Scheme since it is affected by the increase in building height of the east building in Site 5. The wind is blocked by the high-rise east building (60mPD) in Proposed Scheme and lead to a decrease in VR in the area at immediate west. A decrease in VR also observed at the space between Site 4 and 5 under the Proposed Scheme since the building height is increased for both Site 4 and 5 which result of the prevailing wind is stagnated within Site 4 and 5. Thus, lower ventilation performance is obtained at the mentioned area.

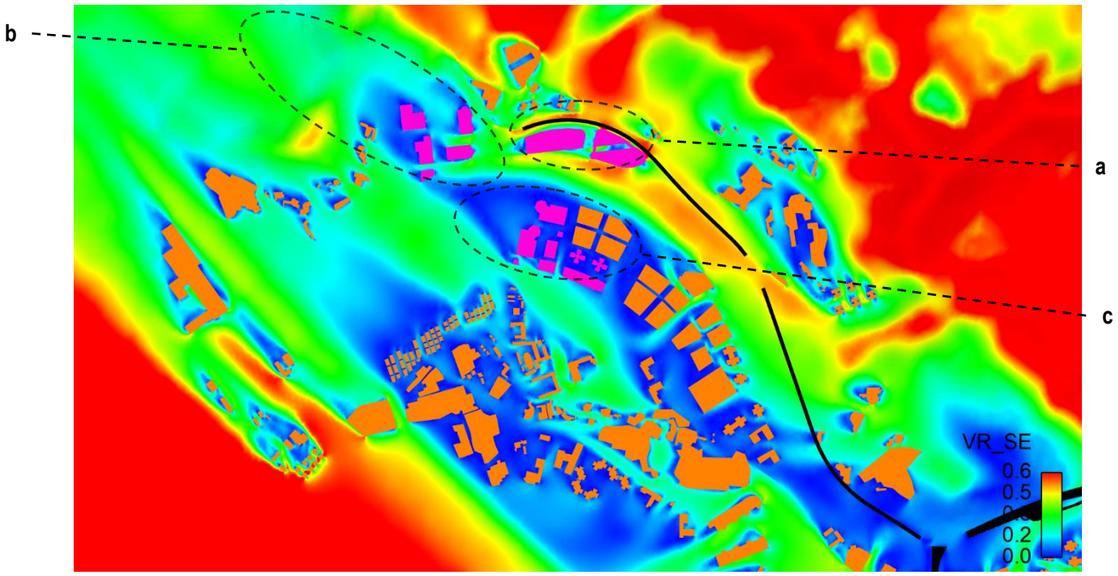
b) A larger wake area is observed at the downstream “GB” area situated at the immediate north-east of Site 4 under the Proposed Scheme due to the increment of maximum building height in Site 4. As a result, the ventilation performance in “GB” area is slightly decreased

c) The VR at downstream ‘G/IC” and “GB” area at immediate south of Site 6 and B2-7 is slightly decreases under the Proposed Scheme since the intensification of the building development in Site 6 and B2-7.

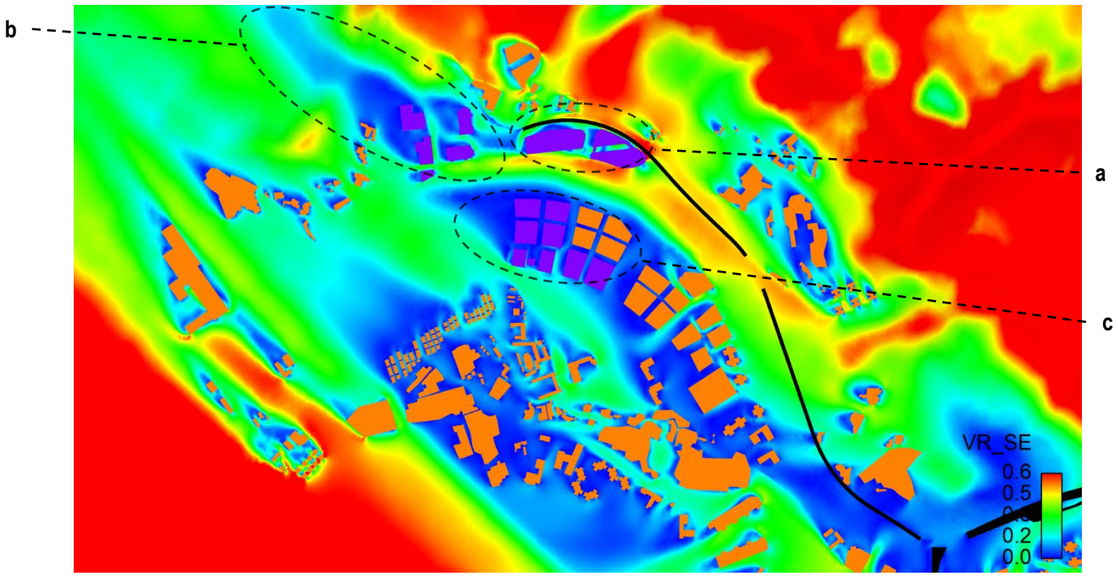
5.2.8. SE Wind Condition (Summer: 6.5%)

Figure 5.2-7 Graphical Illustration under SE Wind Condition

Baseline Scehme



Proposed Scheme



a) Although Site 5 is located at the upwind region under the SE summer prevailing wind direction, a slightly deterioration in VR is observed within Site 5 under the Proposed Scheme. The increment of the building height in Site 5 would casted a large wake along the north-east direction at Site 5, as a result decrease the VR in Site 5.

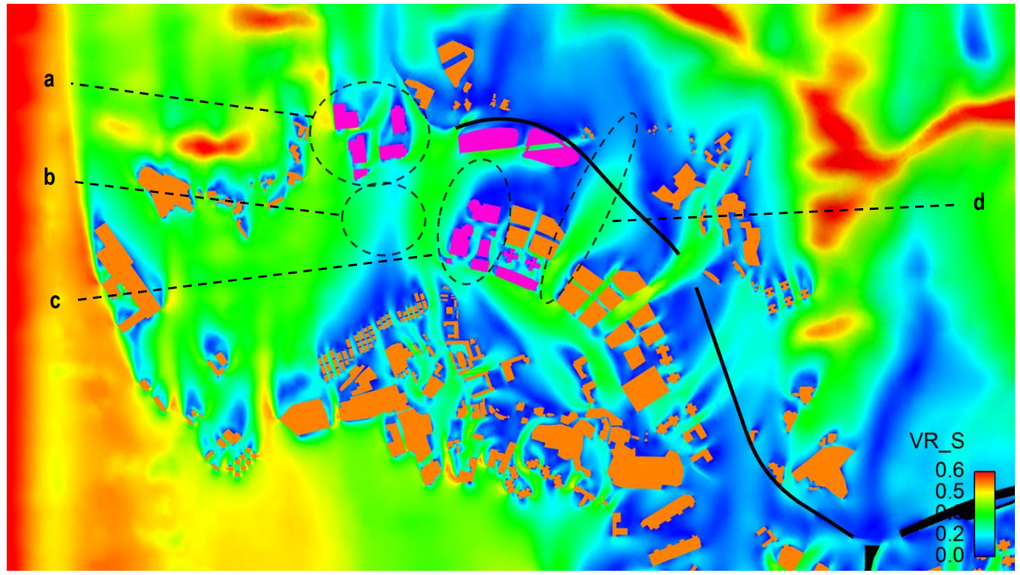
b) Similar to Site 5, a larger wake area is observed at the north-east direction at Site 4 under the Proposed Scheme due to the increment in the maximum building height. The wake area is casted all along the “GB” area that located at the immediate north-west of Site 4 and leading to a lower VR at the mentioned area under the Proposed Scheme.

c) Similar wind VR is observed at Site 6 and B2-7 for both Baseline Scheme and Proposed Scheme. The mentioned Sites are located the downstream region under the SE summer prevailing wind, as a result, the intensification of the development in Site 6 and B2-7 under the Proposed Scheme would not cause further decreases in local VR and the VR at “GB” area in Planning Are 33 at the immediate west of Site 6,

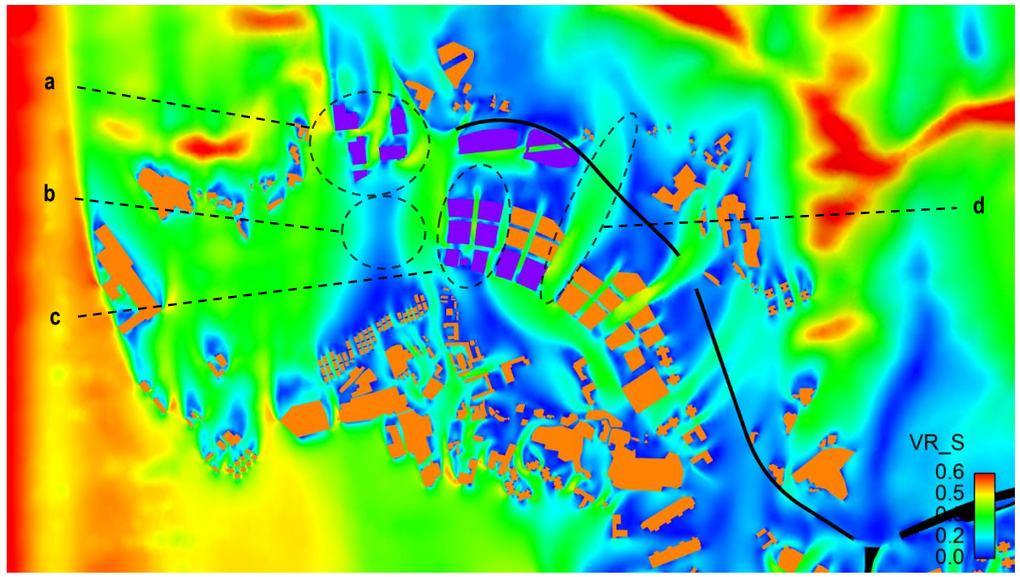
5.2.9. S Wind Condition (Summer: 10.1%)

Figure 5.2-8 Graphical Illustration under S Wind Condition

Baseline Scehme



Proposed Scheme



a) The downstream “AGR” area at the north of the Sheung Shui Heung Village Development in Planning Area 33 shows slightly affected by the alternation of the development scale of Site 4 under Proposed Scheme. The increasing of the building height of Site 4 may reduce the chance for the southerly prevailing wind to skim over the top of the building and stagnated at the “AGR” area. However, no sensitive receiver is identified at the “AGR” area in Planning Area 33. Thus, limited impact will be induced by the intensification of Site 4 under Proposed Scheme.

b) Site 4 is situated at the downstream region under the S summer prevailing wind direction since Sheung Shui Wai Village is at the south of Site 4. Owing to the low-rise village type houses is dominant in Sheung Shui Wai Village and there is a wide open “GB” area in Planning Area 33 between Sheung Shui Wai Village and Site 4, the wind could recover before entering the Site 4 such that the VR of Site 4 will not be affected. The local VR is slightly improved in Site 4 under the Proposed Scheme due to the downwashing effect is enhanced when the building height is increased under the Proposed Scheme. As a result, the ventilation performance is slightly improved within Site 4.

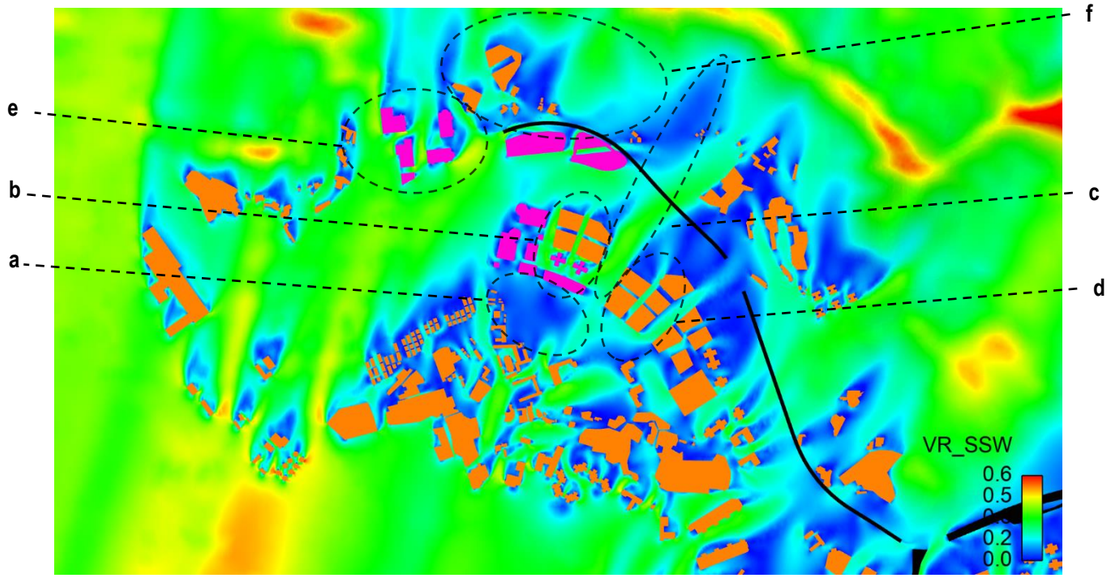
c) Similar to Site 4, Site 6 is also in leeward side which located at the immediate north of Fung Kai School Groups in “G/IC” area. The VR is unavoidably lower comparing to Site 6. The VR wind VR is slightly improved under the Proposed Scheme due to the building layout is more aligned with the southerly prevailing wind when comparing to the Baseline Scheme. Thus, the ventilation performance in the pedestrian level is slightly enhanced under the Proposed Scheme. Also, the wake region at the immediate north of Site 6 is more scatter instead of converging such that the VR at the Open Space in Planning Area 6 is slightly improved under the Proposed Scheme. The intensification of Site 6 would not cause impact to the surrounding environment.

d) The ventilation performance is minorly enhanced at the Open Space in Planning Area 6 near Site B2-7 under the Proposed Scheme. The main reason causing such a improvement is due to stronger channeling effect as a result of increasing in building footprint in the Proposed Scheme which leading decreasing in the building separation between Site B2-7 and the “R(A)II” Site in Planning Area 6.

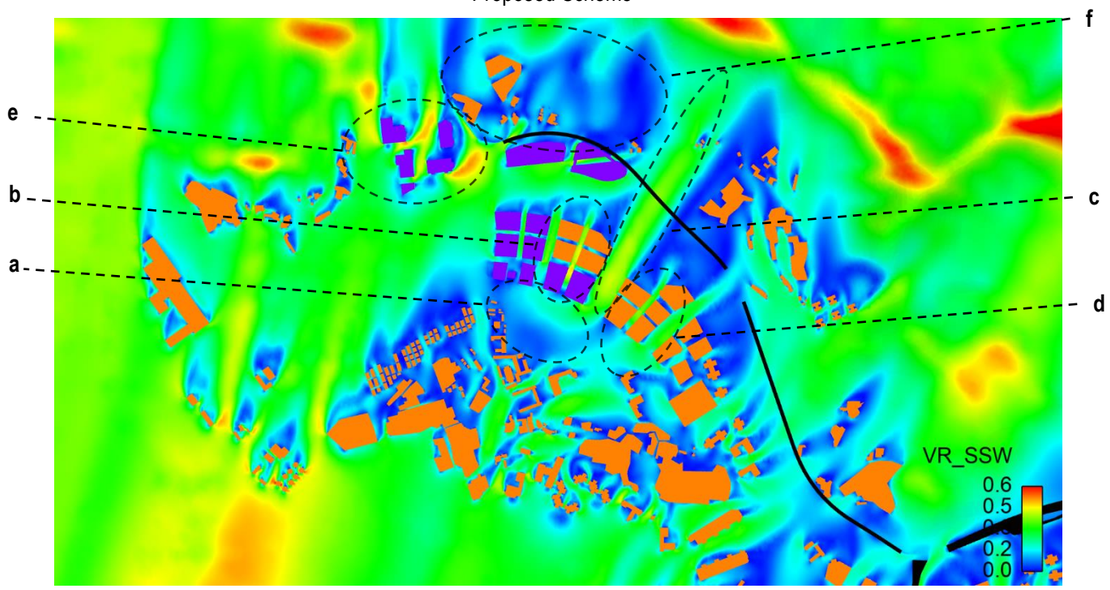
5.2.10. SSW Wind Condition (Summer: 8.3%)

Figure 5.2-9 Graphical Illustration under SSW Wind Condition

Baseline Scehme



Proposed Scheme



a) The wind VR at Fung Kai School Groups in “G/IC” and “GB” area is slightly improved under the Proposed Scheme. The development layout is more aligned and reduced in continuous building footprint in Site B2-7 under the Proposed Scheme. As a result, the prevailing wind could pass through the Site 6 and B2-7 instead of stagnating under the Proposed Scheme. Thus, the ventilation performance is slightly improved in the mentioned area.

b) Further to the previous paragraph, as the reduction in the continuous building façade in Site B2-7 under the Proposed Scheme, the local wind VR in Site B2-7 is slightly improved. The revised in the development layout in Proposed Scheme would induce a stronger channeling effect between the building in Site B2-7, and as a result, the local VR is slightly higher under the Proposed Scheme

c) Despite the alternation of the development layout, the intensification of the building footprint in Proposed Scheme could help to enhance the channeling effect at the Open Space in Planning Area 6 near east of Site B2-7. The VR along the Open Space is slightly improved under the Proposed Scheme, the prevailing wind is more converge and improve the VR all along the Open Space running from southwest to northeast to the “AGR” and “OU” area near northeast of Site 5. Thus, the intensification of the development in Site B2-7 would slightly enhance the ventilation performance of the surrounding environment.

d) Benefit from the channeling effect mentioned in paragraph c), the SSW prevailing wind could skim over the gap in Open Space more smoothly, a slightly improve in the wind VR in “R(A)II” Site B3-6 under the Proposed Scheme when comparing to the Baseline Scheme. The ventilation performance in Site B3-6 would be expected to be enhanced in Proposed Scheme since the prevailing wind would not stagnate in the Mentioned area.

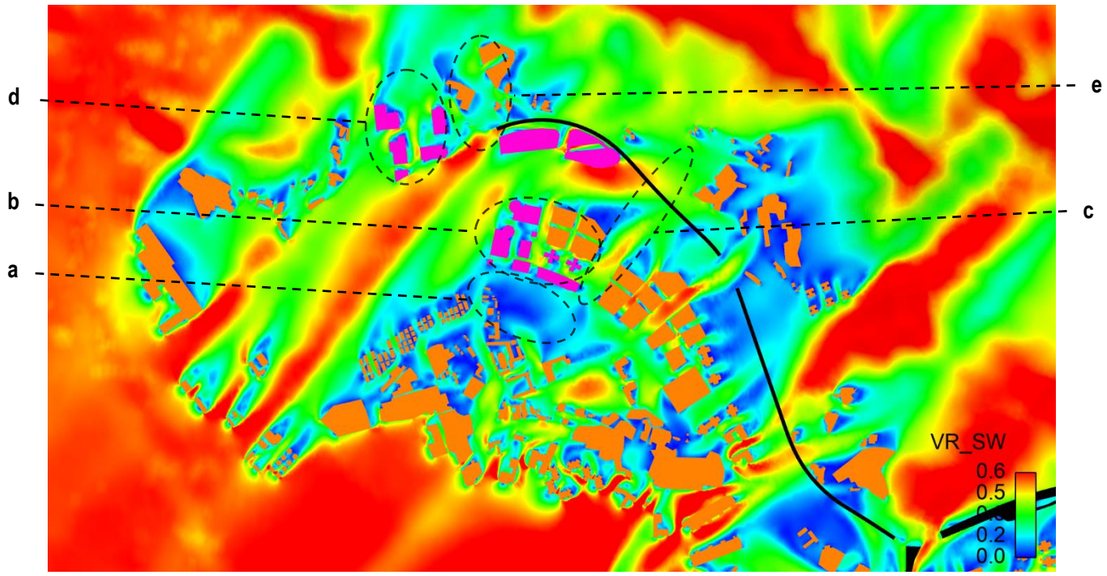
e) The local wind VR in Site 4 is slightly increased under the Proposed Scheme, the increment in the building height could help increase the corner acceleration and downwashing effect since it could help to capture the prevailing wind in higher level and direct the wind to the pedestrian level. Therefore, the ventilation performance at pedestrian is slightly improved in Site 4 under the SSW summer prevailing wind.

f) The VR in downstream Hung Kiu San Tsuen at the immediate south of Site 5 is slightly declined under the Proposed Scheme. The building height of the proposed development is increased from 37.5mPD to 60mPD in the Proposed Scheme which will inevitably create a larger wake at the immediate south to southwest of Site 5 under the SSW prevailing wind. A 20m wide NBA is preserved in Site 5 for minimizing the impact done by the intensification of Site 5. Thus, limited impact is made by the increasing the building height in Site 5.

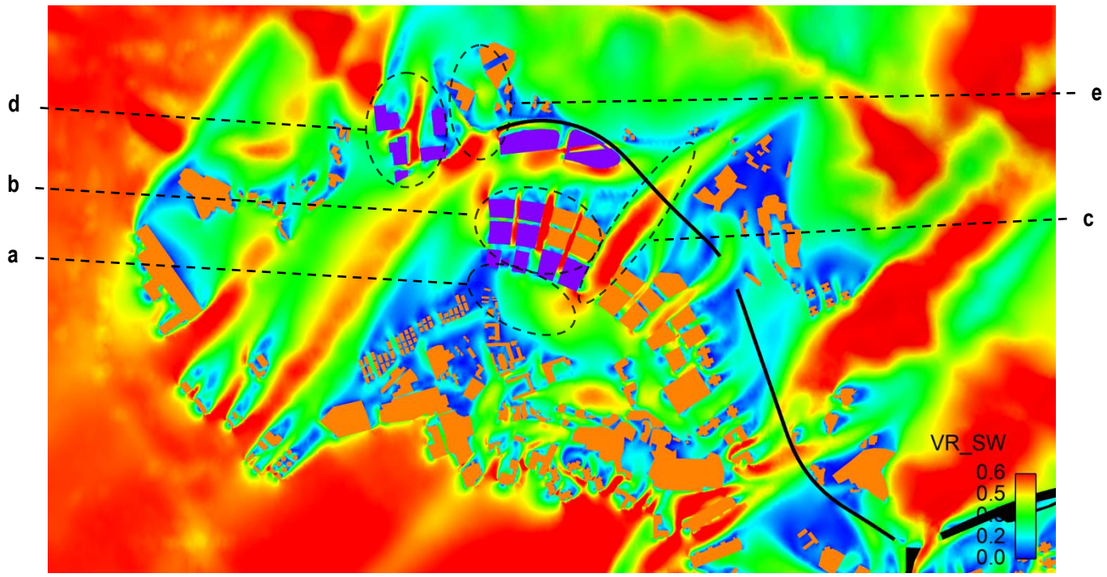
5.2.11. SW Wind Condition (Annual: 4.9%; Summer: 14.5%)

Figure 5.2-10 Graphical Illustration under SW Wind Condition

Baseline Scehme



Proposed Scheme



a) The VR at Fung Kai School Groups in “G/IC” and “GB” area is significantly improved in the Proposed Scheme under the SW prevailing wind direction. The major reason is that increasing the building height in both Site 6 and B2-7 at the immediate north to northeast of the “G/IC” and “GB” area in Proposed Scheme would generate a strong downwashing effect that capturing the prevailing wind at higher level and leading the wind towards the pedestrian level. Thus, the ventilation performance of the mentioned area will be enhanced due to the intensification of the Site 6 and B2-7.

b) The local VR is enhanced in both Site 6 and B2-7 in the Proposed Scheme under the SW prevailing wind direction. There are two reasons for such an improvement in ventilation environment. First of all, the building footprint in the Proposed Scheme is enlarged to more intensive compare with the Baseline Scheme, which will reduce the separation running in southwest to northeast of each building. Thus, stronger channeling effect is induced in the building separation and leading to higher VR in the mentioned area. Another reason would be the alternation in the building layout under the Proposed Scheme, the buildings are arranged to create the gap that aligned with the southwest prevailing wind such that the prevailing can pass through the Site 6 and B2-7 more smoothly without stagnating.

c) The VR along the Open Space in Planning Area 6 is significantly improved under the Proposed Scheme. The building footprint of the Site B2-7 is increased comparing with the Baseline Scheme which will induce a greater channeling effect and causing such a enhancement. The VR in Open Space and the “AGR” area near the east of Site 5 is improved due to the converging wind channel included from the Open Space in Planning Area 6.

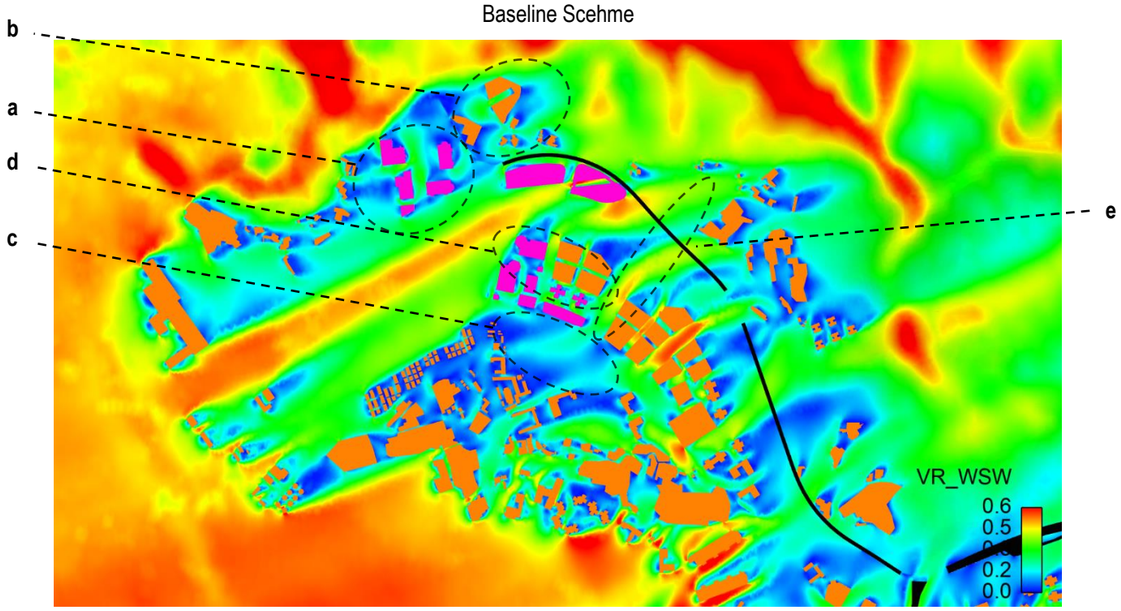
d) The local VR in Site 4 is significantly improved in the Proposed Scheme under the SW prevailing wind. The increasing in the building height would enhance the corner acceleration effect at the edges of the buildings inside Site 4, the prevailing wind at higher level could be captured by increasing the building height and then, the wind will strike on the building at the north which will increase the chance of downwashing and bring the prevailing wind to the pedestrian level. Thus, the ventilation performance is improved in the Proposed Scheme.

e) Owing to induced channeling effect by the intensification of the development in Site 6, the wind is joining from the edges of Site 6 to the Man Kam To Road between Site 4 and 5, the wind quality is increased when entering Hung Kiu San Tsuen at the northwest of Site 5. Thus, the VR in Hung Kiu San Tsuen is slightly improved under the Proposed Scheme.

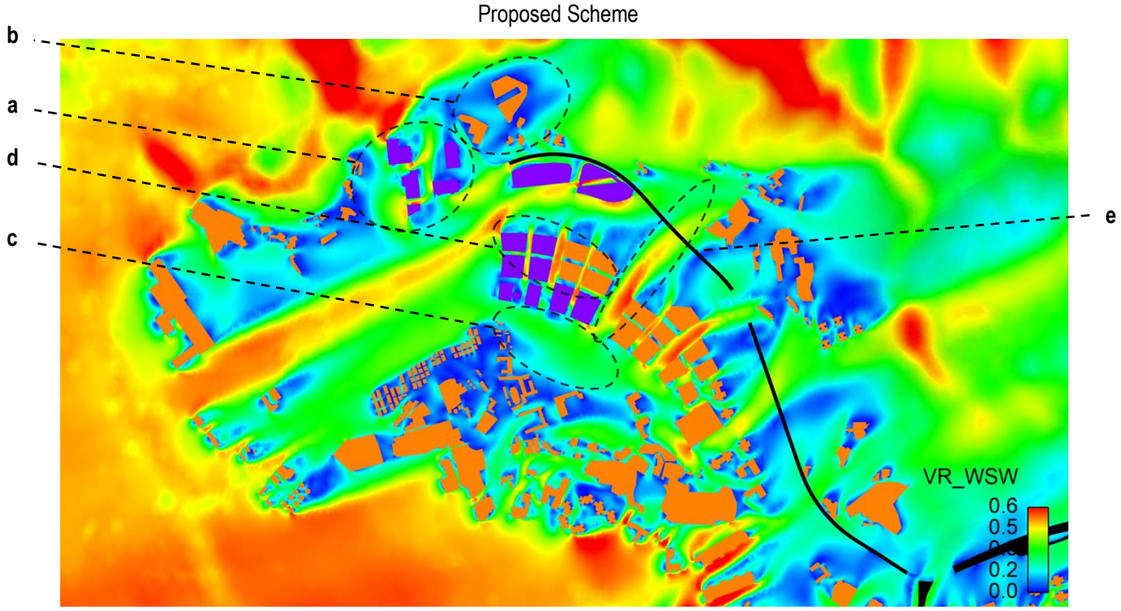
5.2.12. WSW Wind Condition (Summer: 9.7%)

Figure 5.2-11 Graphical Illustration under WSW Wind Condition

Baseline Scehme



Proposed Scheme



a) Downstream Site 4 is located at the northeast of the low-rise building in “AGR” area in Planning Area 2, the local VR and the VR in Conservation Area “CA” in the southwest of the Site 4 is slightly increased due to stronger induced downwashing effect under the Proposed Scheme. The building height in Site 4 is increased from 40mPD to 100mPD in Proposed Scheme, the high-rise building in Site 4 is located at the behind of the low-rise building in “AGR” area in Planning Area 2 under the WSW prevailing wind. Thus, the tall building captures the wind at higher levels and then redirects it towards the pedestrian level, causing a three-dimensional flow moving downwards. In turn, this effect often creates a large recirculation at the pedestrian level, causing greater wind activity.

b) However, the increasing of the building height of Site 4 would inevitably causing a larger wake region casting over the Hung Kiu San Tsuen at the northeast of Site 4. The VR of downstream Hung Kiu San Tsuen is slightly deteriorated due to the intensification of Site 4 under Proposed Scheme

c) The VR at Fung Kai School Groups in “G/IC” and “GB” area is significantly improved in the Proposed Scheme under the WSW prevailing wind direction. The major reason is that increasing the building height in both Site 6 and B2-7 at the immediate north to northeast of the “G/IC” and “GB” area in Proposed Scheme would generate a strong downwashing effect that capturing the prevailing wind at higher level and leading the wind towards the pedestrian level. Thus, the ventilation performance of the mentioned area will be enhanced due to the intensification of the Site 6 and B2-7.

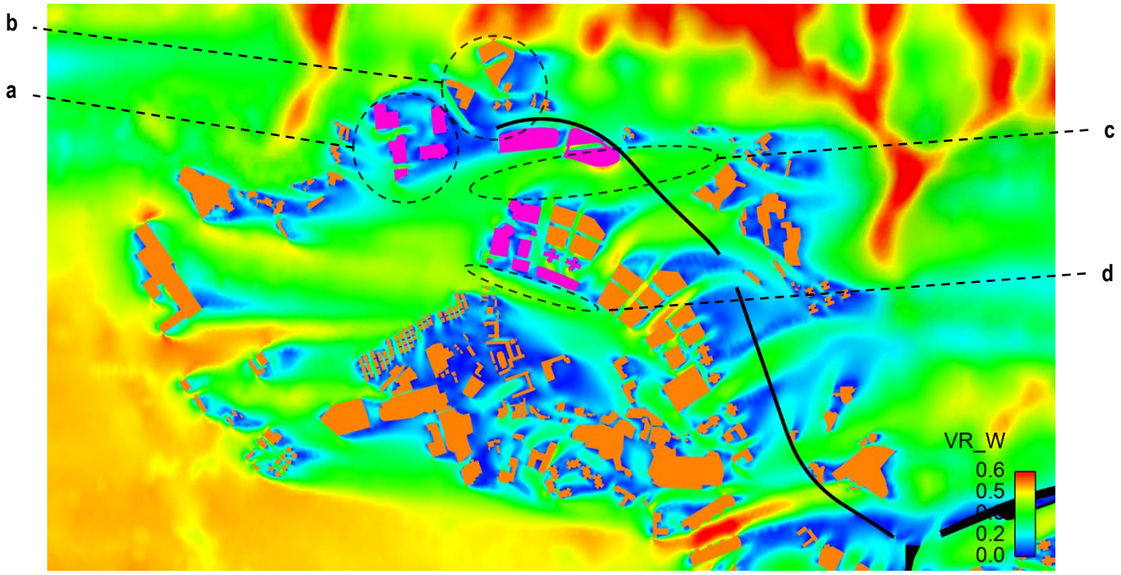
d) The local VR is enhanced in both Site 6 and B2-7 in the Proposed Scheme under the SW prevailing wind direction. There major reason leading such improvement is that the increase in building footprint and narrowing the building separation could leading a greater channeling effect which directing the WSW prevailing wind to skimming over the building separation in Site 6 and B2-7. Thus, the ventilation performance at pedestrian level would be improved under the Proposed Scheme.

e) The VR along the Open Space in Planning Area 6 is significantly improved under the Proposed Scheme. The building footprint of the Site B2-7 is increased comparing with the Baseline Scheme which will induce a greater channeling effect and causing such a enhancement. The VR in Open Space , “AGR” area and Sheung Shui Wa Shan near the east of Site 5 is improved due to the converging wind channel included from the Open Space in Planning Area 6.

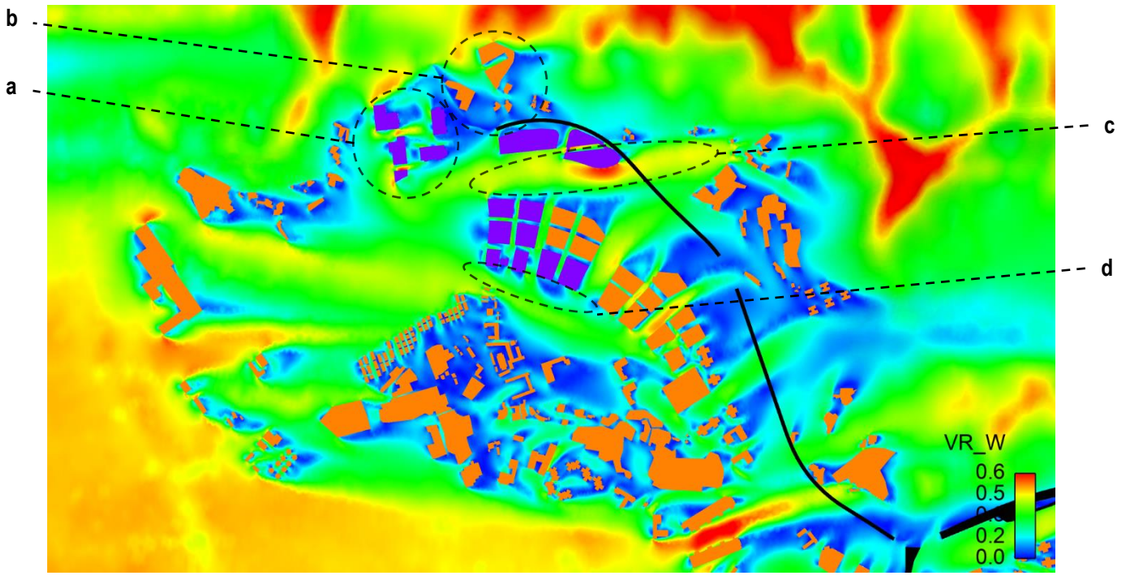
5.2.13. W Wind Condition (Summer: 6.5%)

Figure 5.2-12 Graphical Illustration under W Wind Condition

Baseline Scehme



Proposed Scheme



a) Downstream Site 4 is located at west of the low-rise building at the “AGR” in Planning Area under the westerly summer prevailing wind. Slightly better local VR in Site 4 is observed under the Proposed Scheme owing to the intensification of the building height in the Proposed Scheme, the high rise building in Site 4 would enhance the downwashing effect that secure the ventilation performance at the pedestrian level.

b) In contrast, the increasing in the building height would inevitably cause the decline in VR of the downstream Hung Kiu Sa Tsuen since larger wake will be induced at the immediate west of Site 4 by the intensified development in Proposed Scheme. As a result, the ventilation environment of Hung Kiu Sa Tsuen will be affected by the Proposed Scheme of Site 4.

c) Improvement in the wind VR of the circled area in Ng Tung River is observed under the Proposed Scheme that result of the stronger channeling effect induced by the intensification of the building footprint in Site 5 and 6. The increase in the building footprint will shorten the separation between the building in Site 5 and 6 which will reduce the wind pressure, resulting in wind acceleration through the tight channel created between the buildings. It will also benefit to the ventilation performance at Sheung Shui Wa Shan that located the east direction of Site 5 in the Proposed Scheme.

d) The wind VR at circled part of Road L4, “GB” area at the immediate south of Site 6 and B2-7 is minorly declined under the Proposed Scheme due to the increment of the building footprint and building height in the mentioned Sites under the Proposed Scheme. A larger wake will be induced at the immediate south and southeast under the westerly prevailing wind. Thus, the ventilation environment at Road L4 and “GB” area will be affected.

6. CONCLUSION

6.1. Summary

6.1.1. The FLN NDA is located at the north of existing Fanling/Sheung New Town area. To analyse the ventilation effects of the development proposal of Sites 4 – 6 and B2-7, an Air Ventilation Assessment (AVA) review was conducted for both annual and summer prevailing wind conditions.

6.1.2. The CFD simulation involved complex 3-dimensional turbulence flow for the assessment area were performed in accordance to HPLB Technical Circular No. 1/06 on AVA. Seven wind directions with accumulative occurrence percentage of 77.5% were considered for annual conditions whilst eight wind directions with accumulative occurrence percentage of 77.3% were considered for summer conditions. Two study scenarios, baseline and proposed schemes, were carried out.

6.1.3. As stated in AVA Technical Circular, Wind Velocity Ratio (VR) is adopted as the indicator of wind performance enjoyed by pedestrians at particular levels. A total of 84 perimeter test points, 130 overall test points and 2 special test points were selected to assess the ventilation performance within the assessment area.

6.2. Key Findings

6.2.1. The annual spatial velocity ratio (SVR) for baseline and proposed schemes are 0.26 for both cases whilst the summer SVR are 0.23 and 0.24 respectively.

6.2.2. The annual local velocity ratio (LVR) for baseline and proposed schemes are 0.23 for both cases whilst the summer LVR are 0.21 for both cases.

6.2.3. With reference to the simulation results as well as the SAVRs, it shows that the Baseline Scheme and the Proposed Scheme would have comparable overall wind performances. On one side, the Proposed Scheme would have improvements in both subject sites and surrounding environment such as Site 4, B2-7, “R(B)” Site (B3-9), Conservation Area east of Site B1-9 due to the intensified downwashing effect and channeling effect induced by the increasing of the building height and building footprint. However, slightly deterioration of the wind VR also observed at the main roads within the FLN NDA such as Po Wan Road and Jockey Club Road owing to the enlarged wake due to increase in building height.

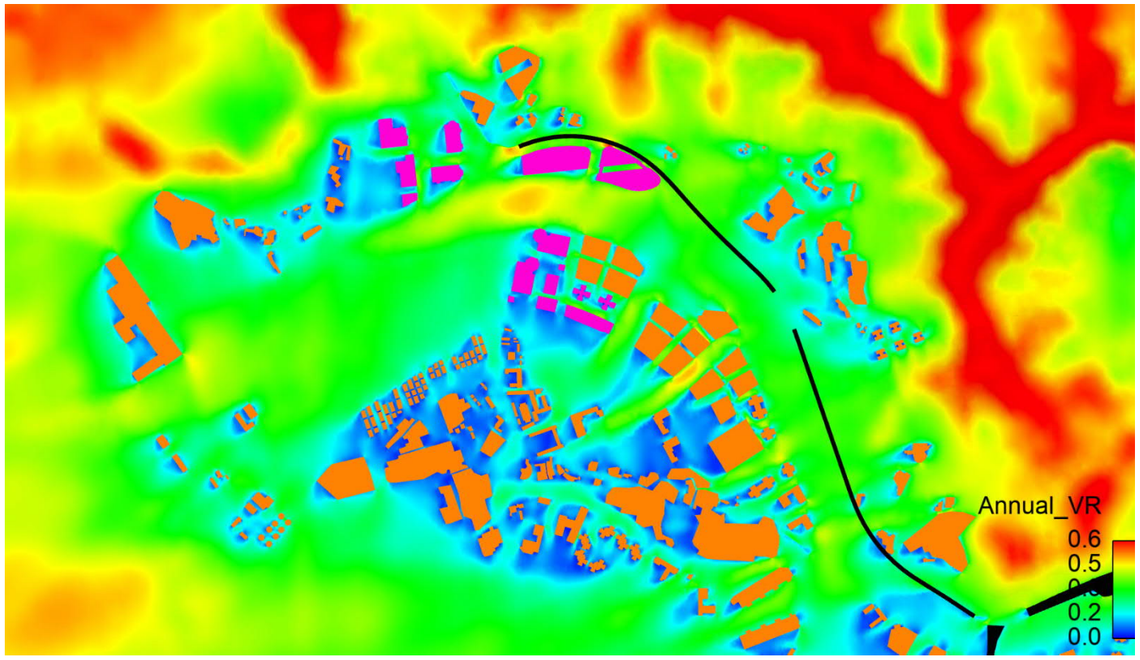
6.2.4. To further minimize ventilation impacts on the surrounding built environment and improve local wind performance of the NDA, it is recommended that the following design measures to be considered at later detailed design stages. The mitigation measures proposed / recommended would be further studied and refined based on the development schemes of development sites at the detailed design stage.

- Avoid long continuous façades and face shorter frontages of proposed buildings to the prevailing wind directions
- Minimization/Break down of podium bulk with small ground coverage or adoption of podium-free design Reduce ground coverage by break down of podium bulk or podium-free design
- Adopt empty bay design on the ground floor of podium or podium gardens to enhance the wind permeability at pedestrian level
- Adopt terraced podium designs for podia to enhance ventilation.
- Reference to the recommendations of design measures in the Sustainable Building
- Design Guideline (SBDG) and Hong Kong Planning Standards and Guidelines (HKPSG)
- Ensure building permeability equivalent to 20% to 33.3% of total frontal area, with reference to PNAP APP-152
- Design the urban grids within the FLN NDA containing the Project Sites in accordance with major prevailing wind directions
- Adopt full building/podium setbacks at feasible locations, with reference to PNAP APP-152.
- Incorporate greeneries (preferably tree planting at grade) covering no less than 30% within the Project Sites

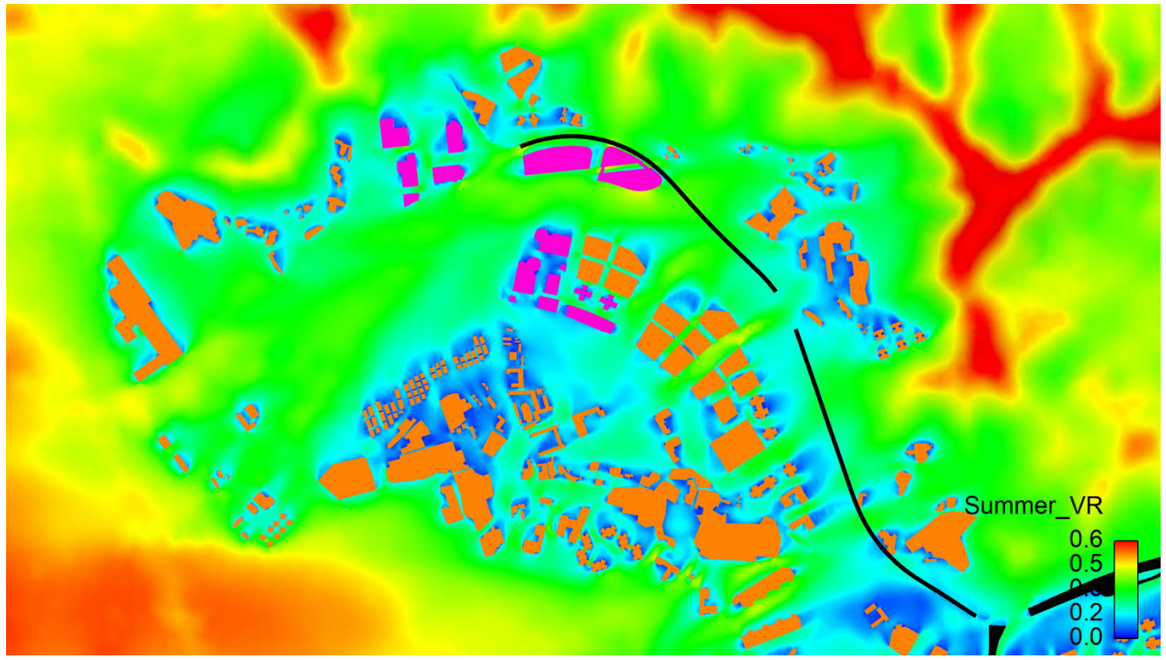
APPENDIX A

VR CONTOUR PLOT OF CFD SIMULATION RESULTS

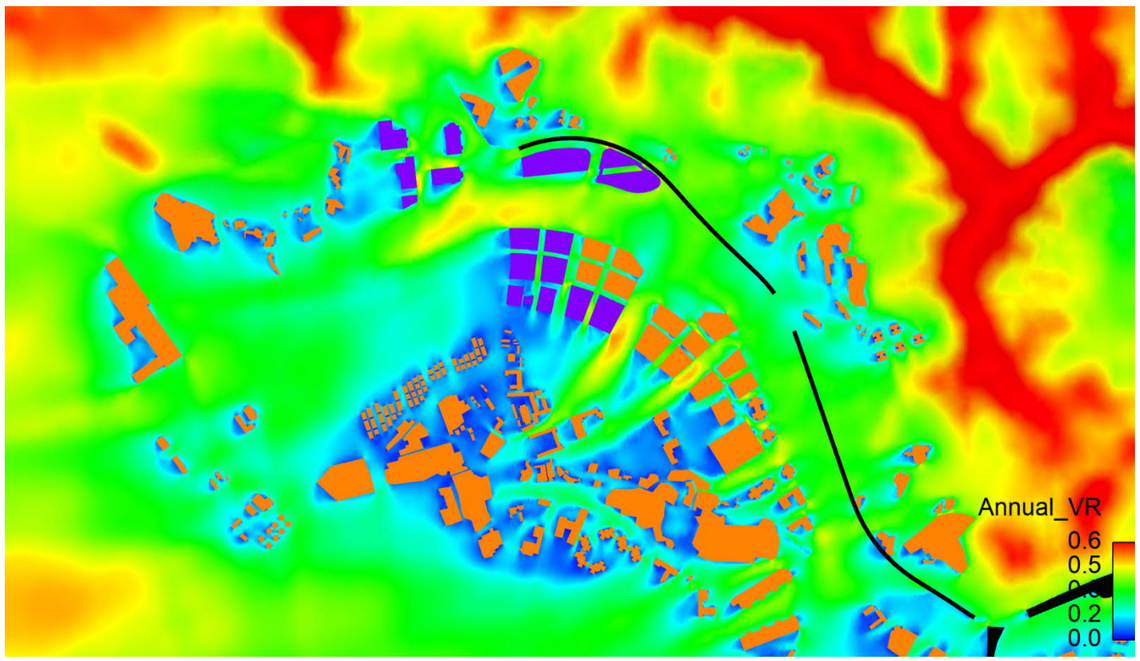
Annual Wind Condition (Baseline)



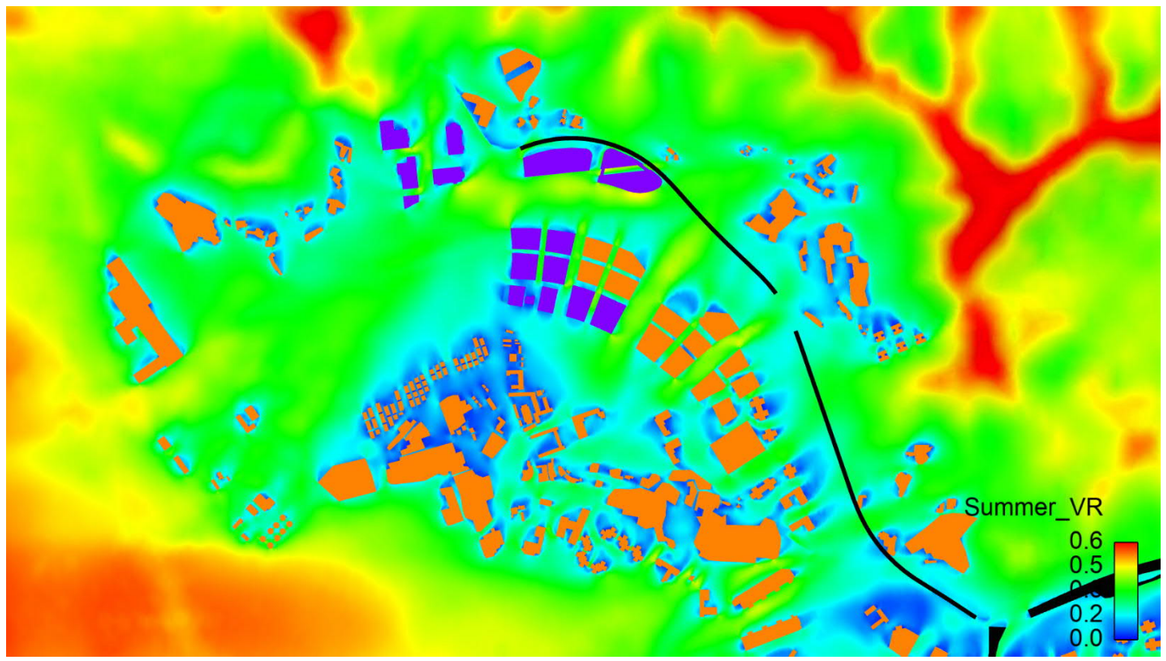
Summer Wind Condition (Baseline)



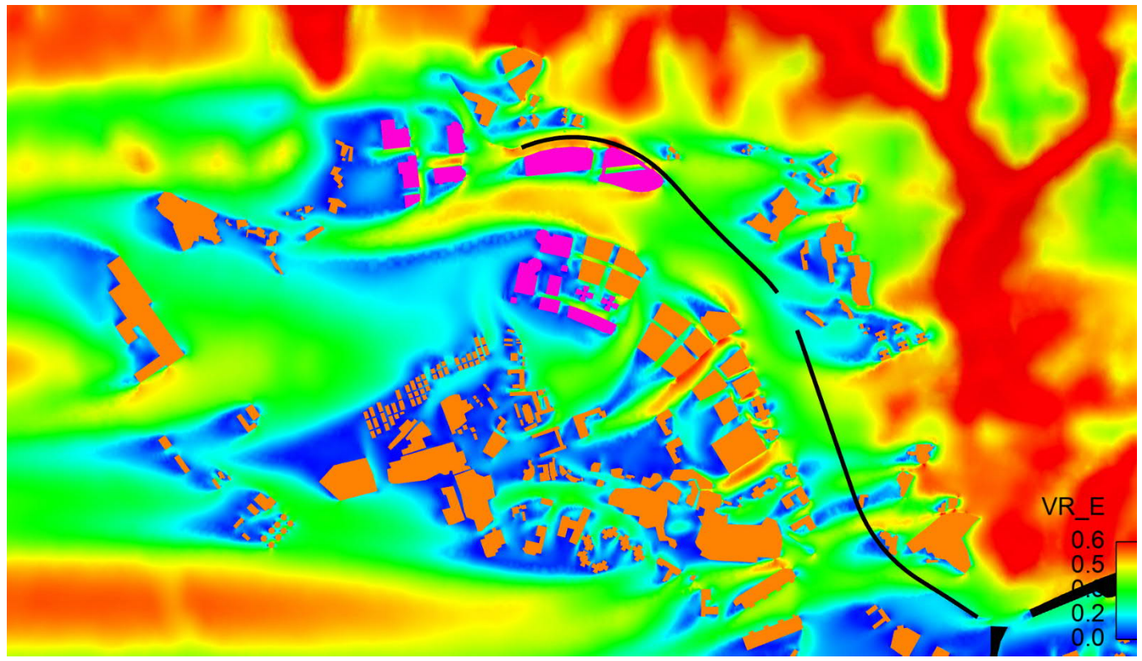
Annual Wind Condition (Proposed)



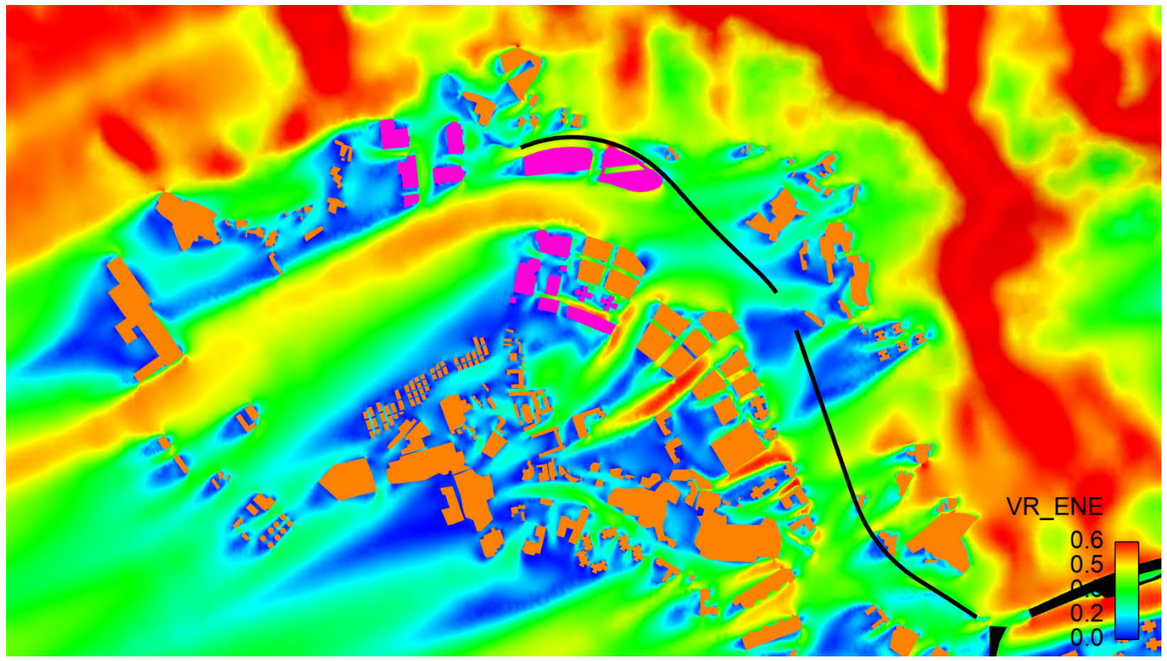
Summer Wind Condition (Proposed)



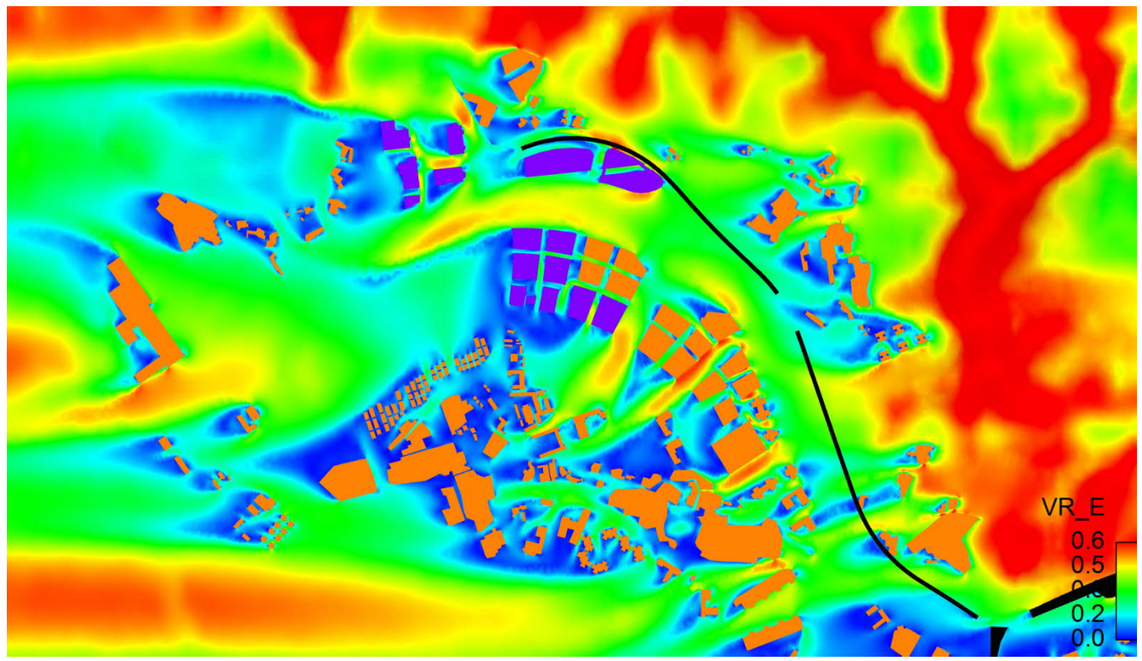
E Wind Condition (Baseline)



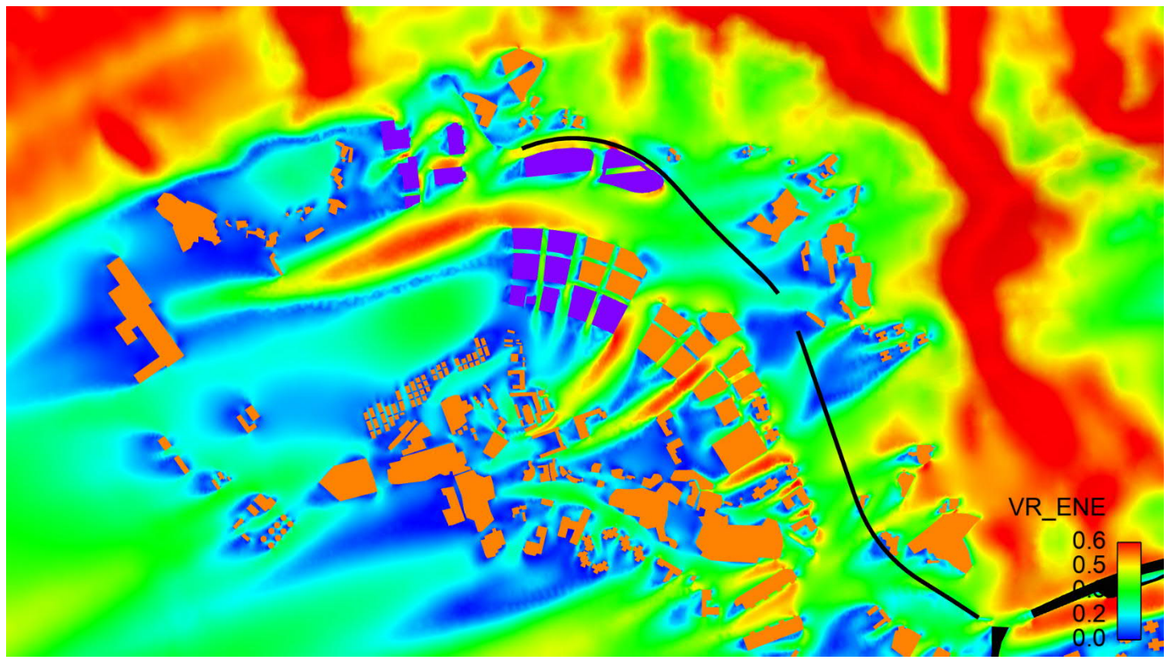
ENE Wind Condition (Baseline)



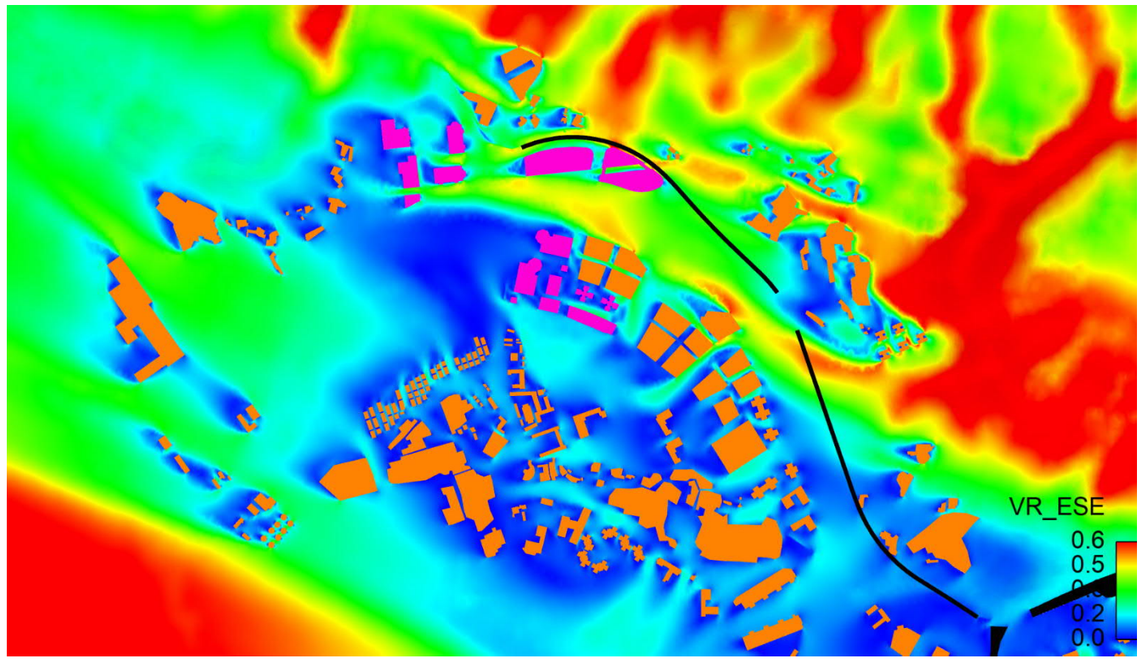
E Wind Condition (Proposed)



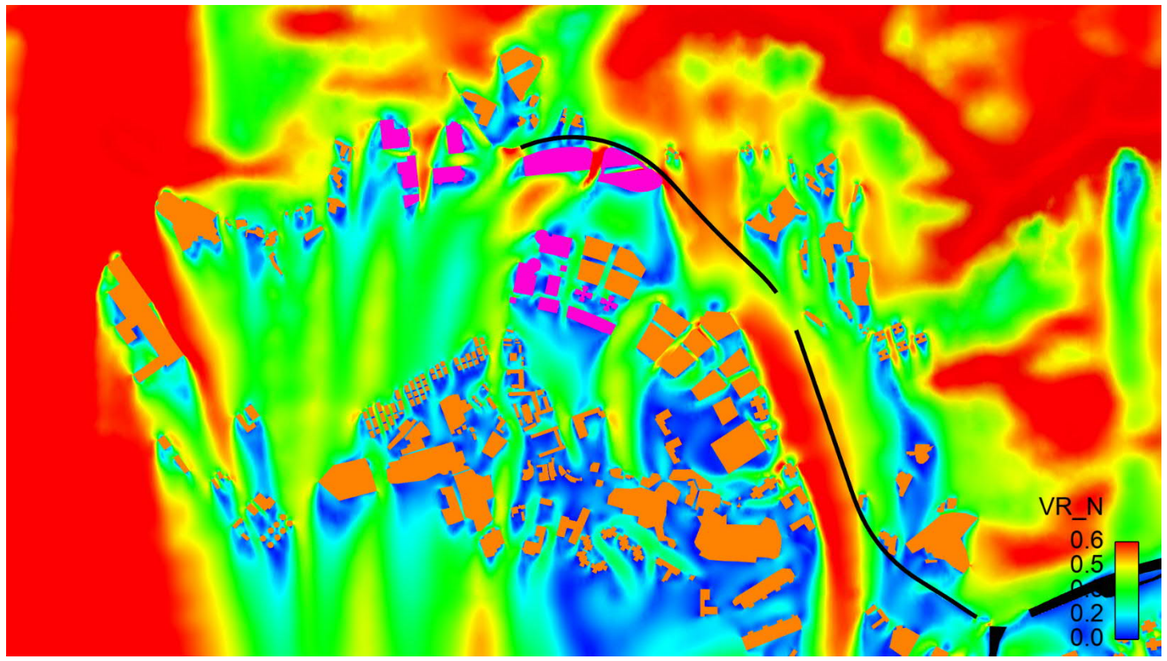
ENE Wind Condition (Proposed)



ESE Wind Condition (Baseline)



N Wind Condition (Baseline)



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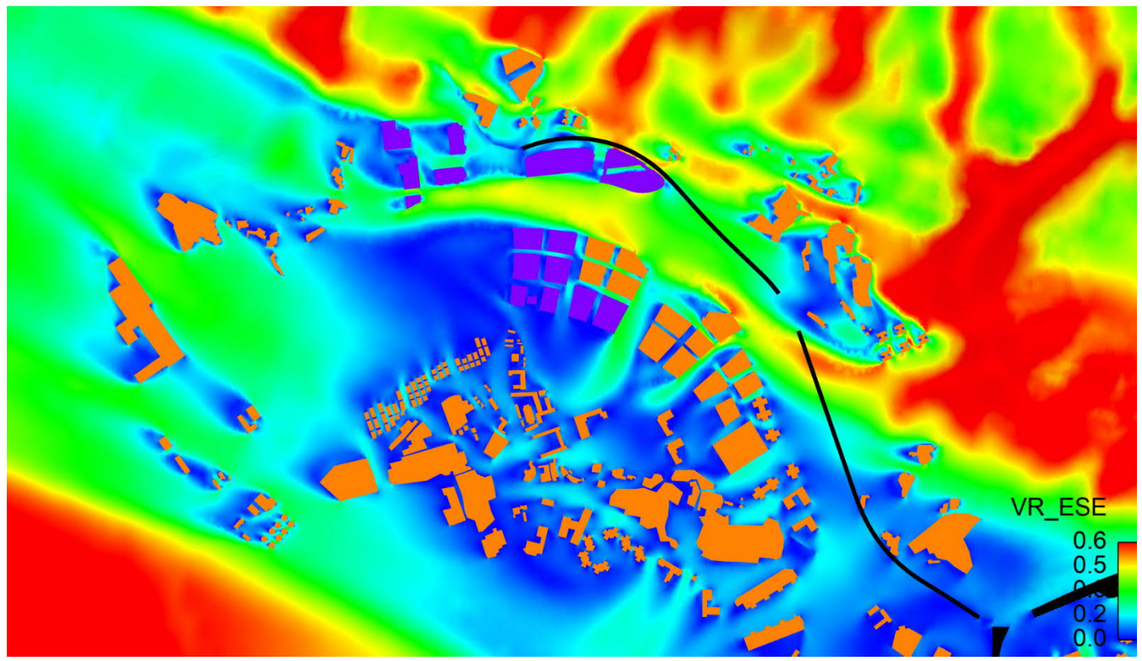

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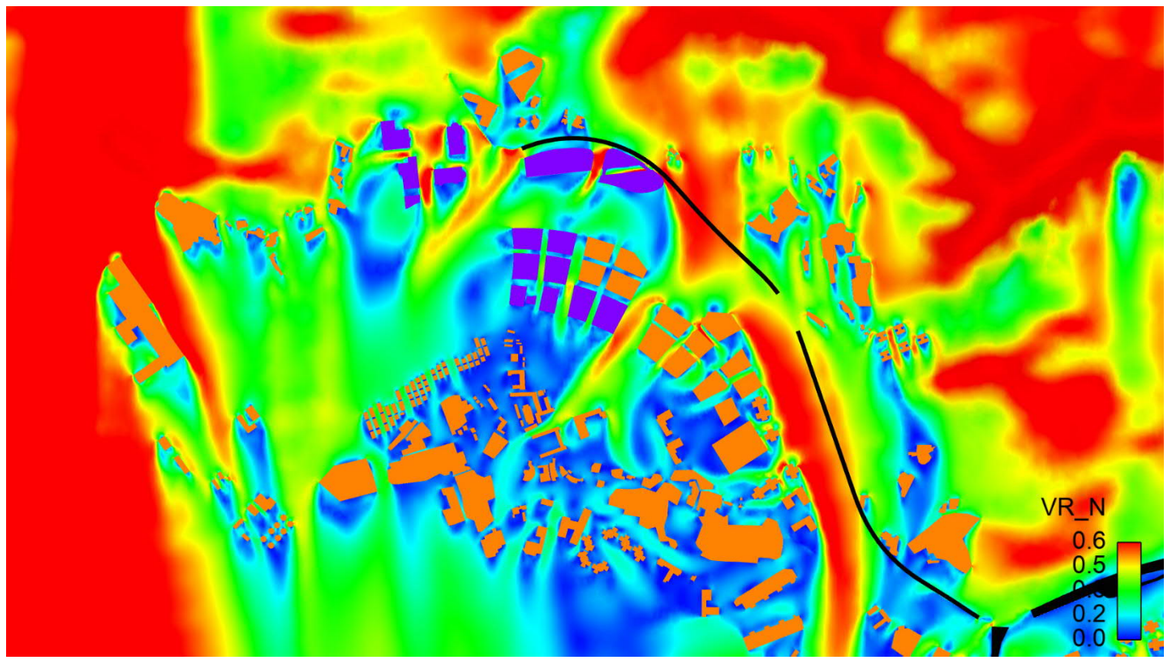
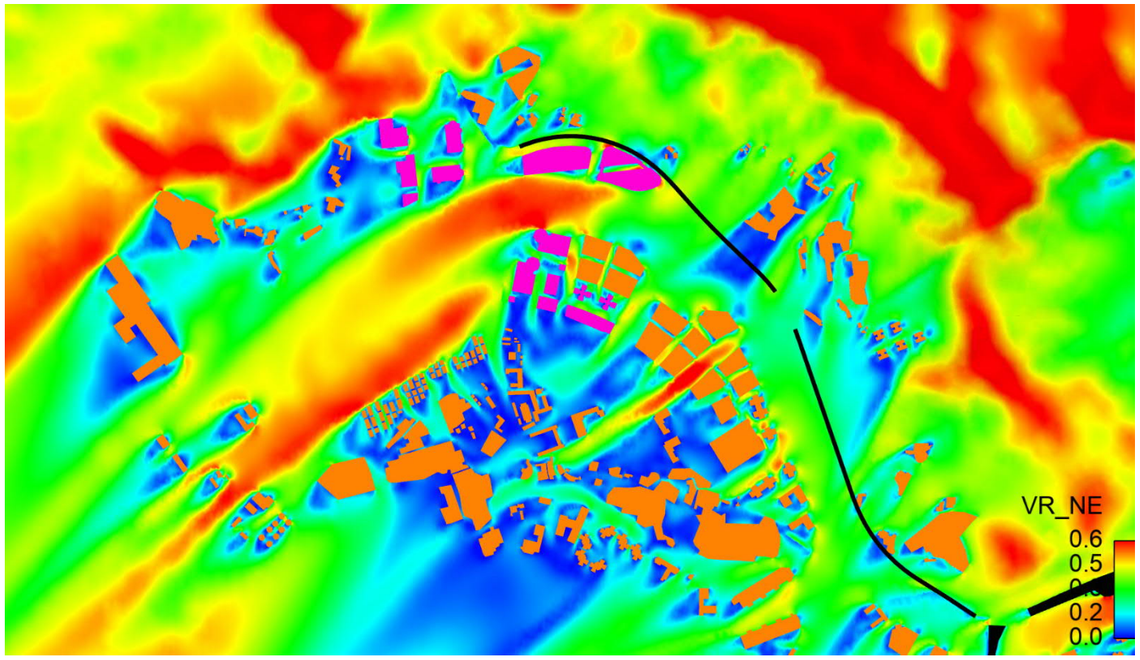


NE Wind Condition (Baseline)



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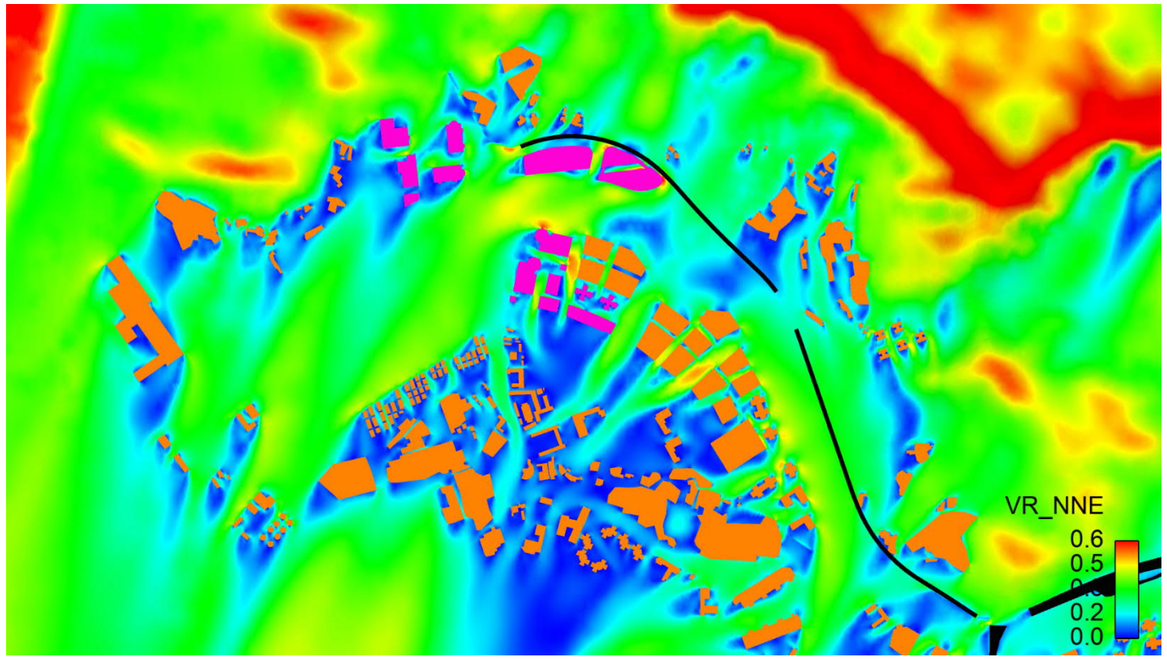

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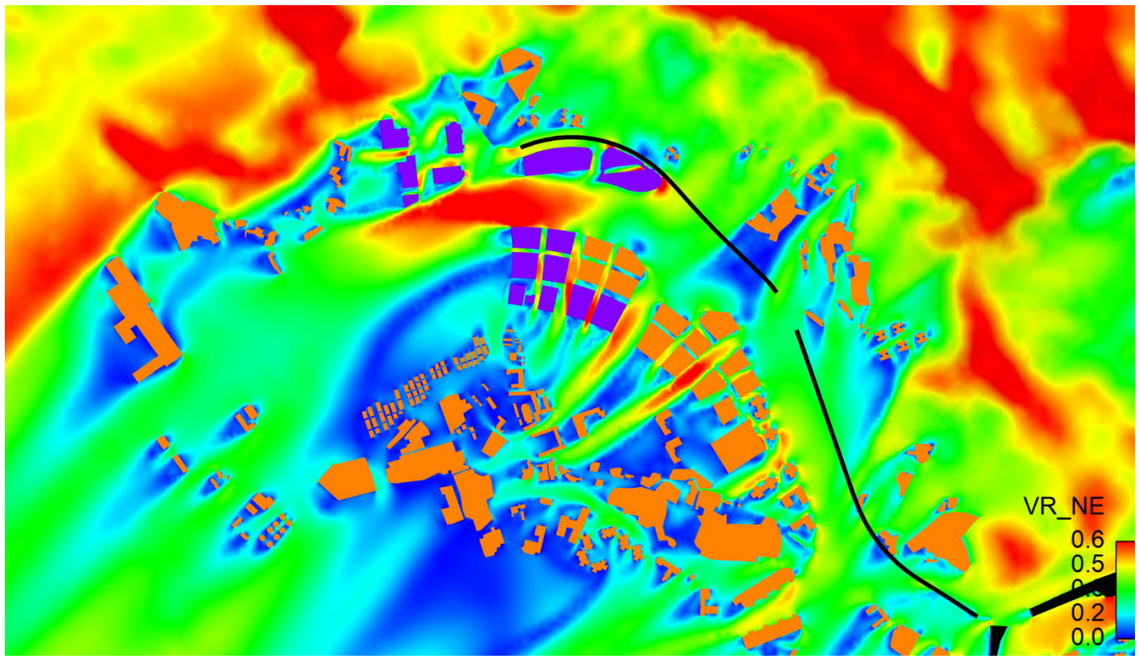

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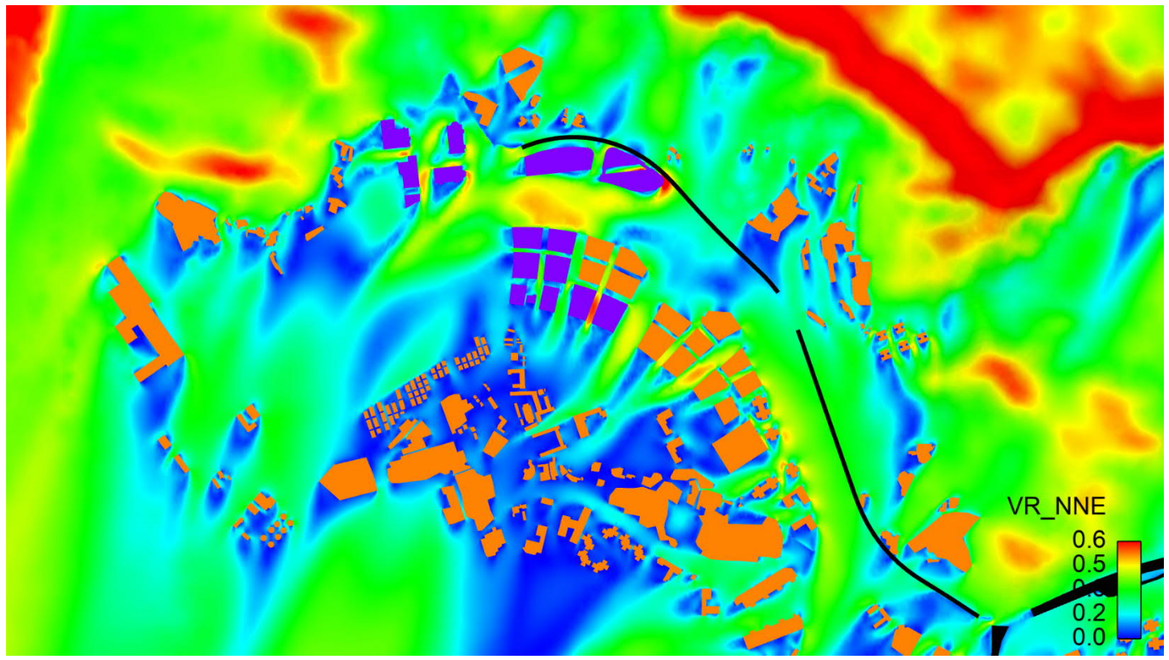
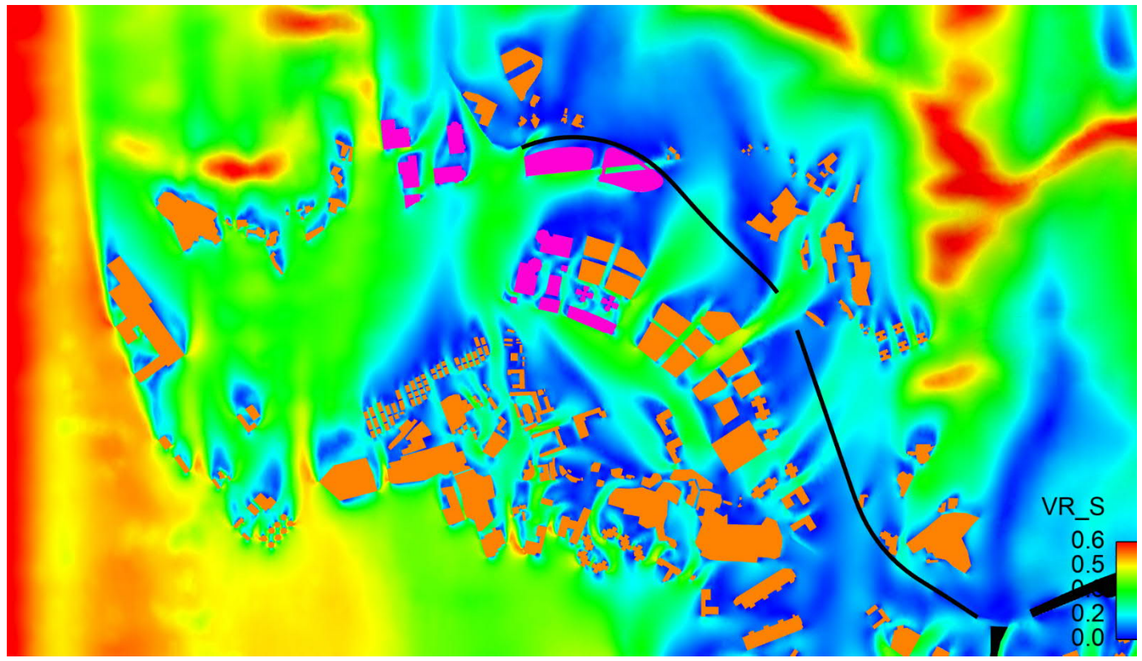
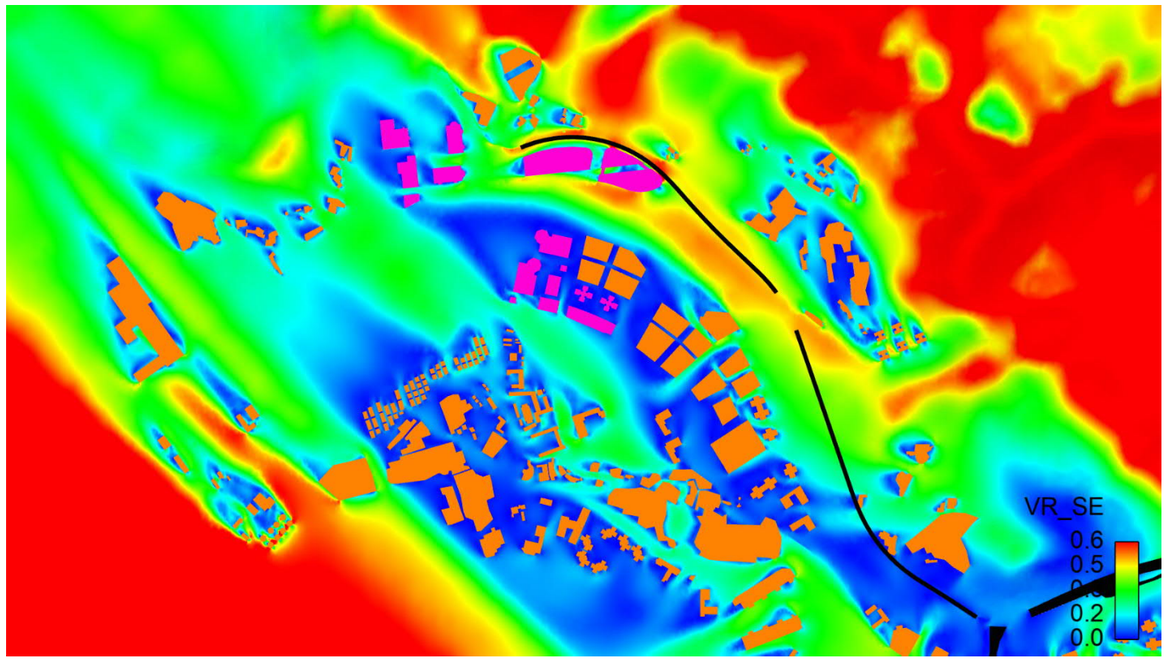


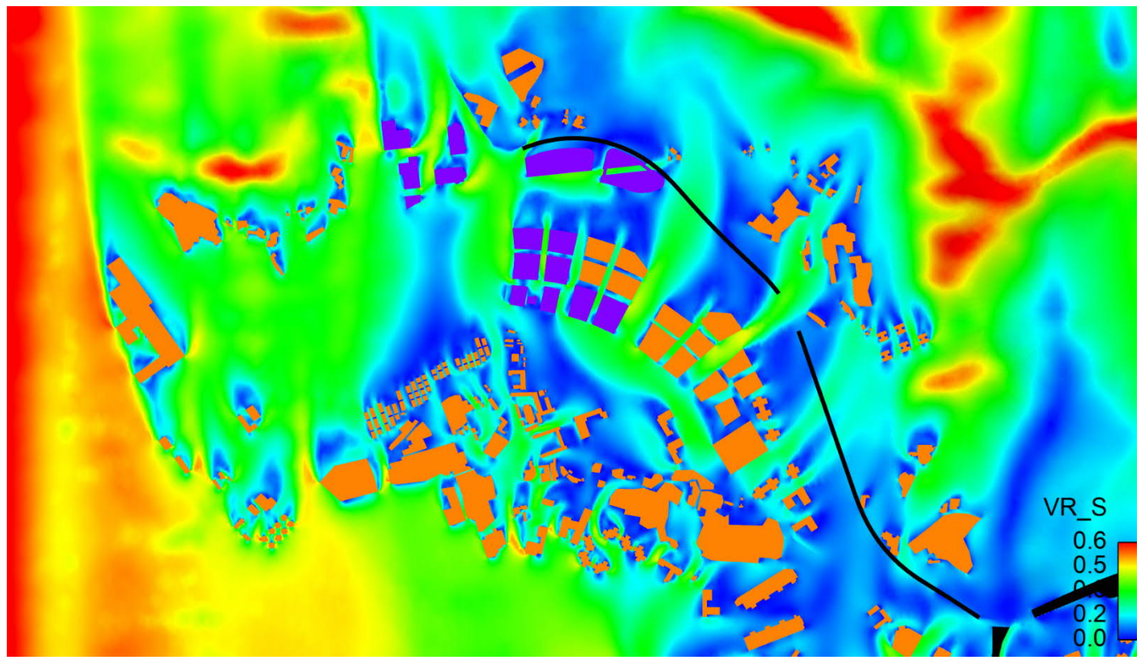
S Wind Condition (Baseline)



SE Wind Condition (Baseline)



S Wind Condition (Proposed)



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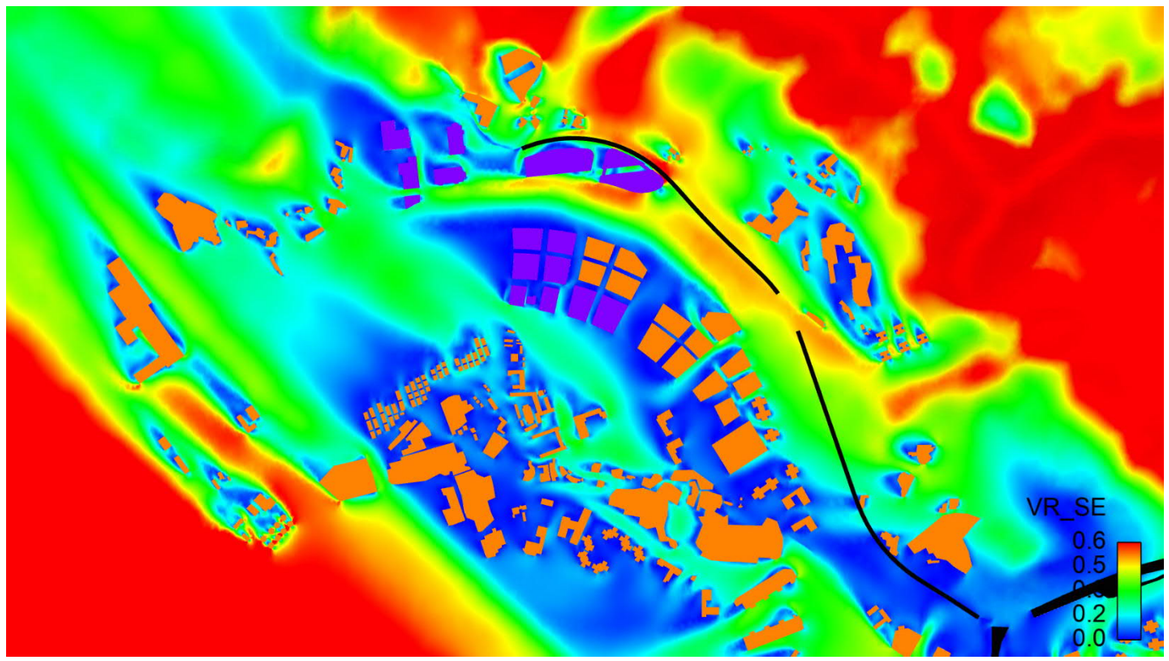
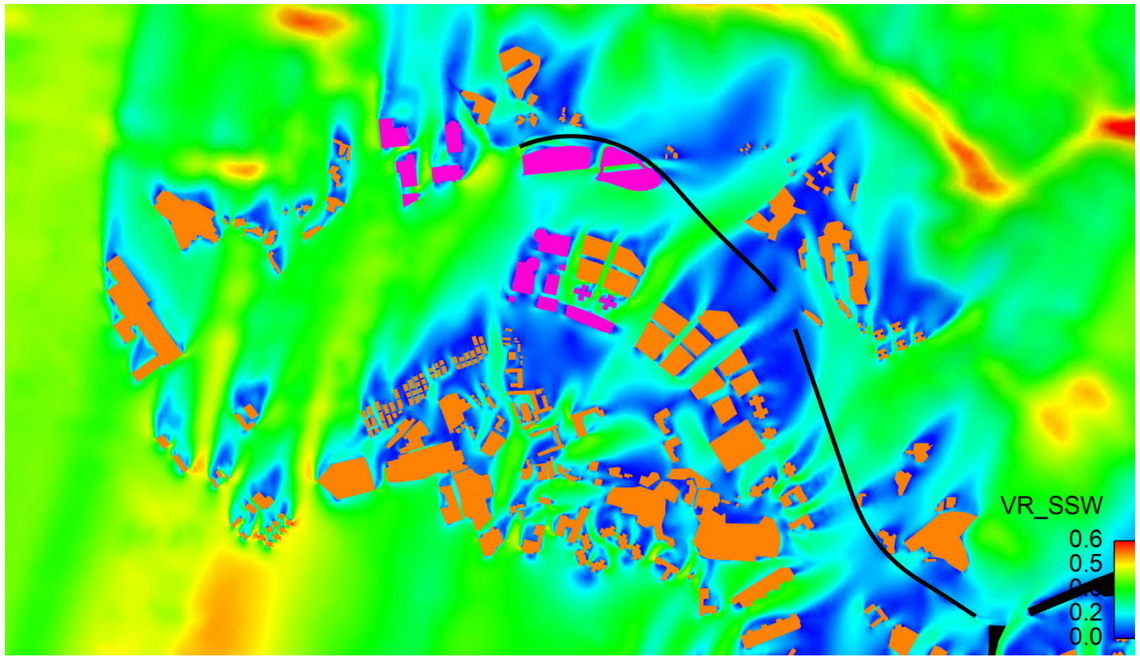
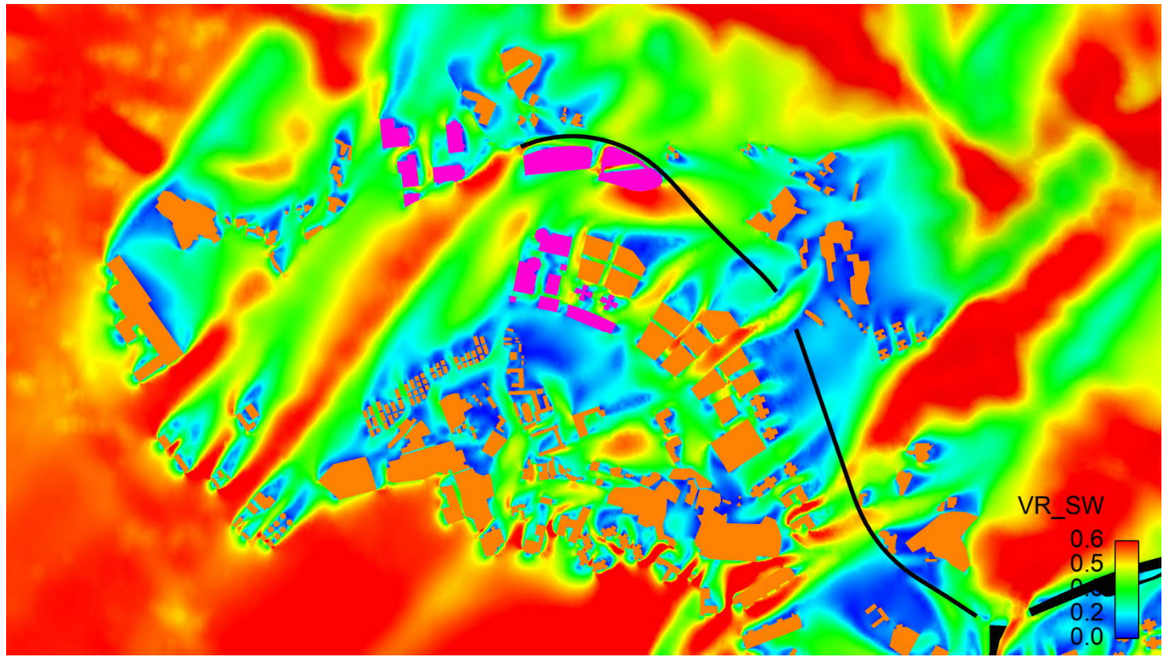


SSW Wind Condition (Baseline)



SW Wind Condition (Baseline)



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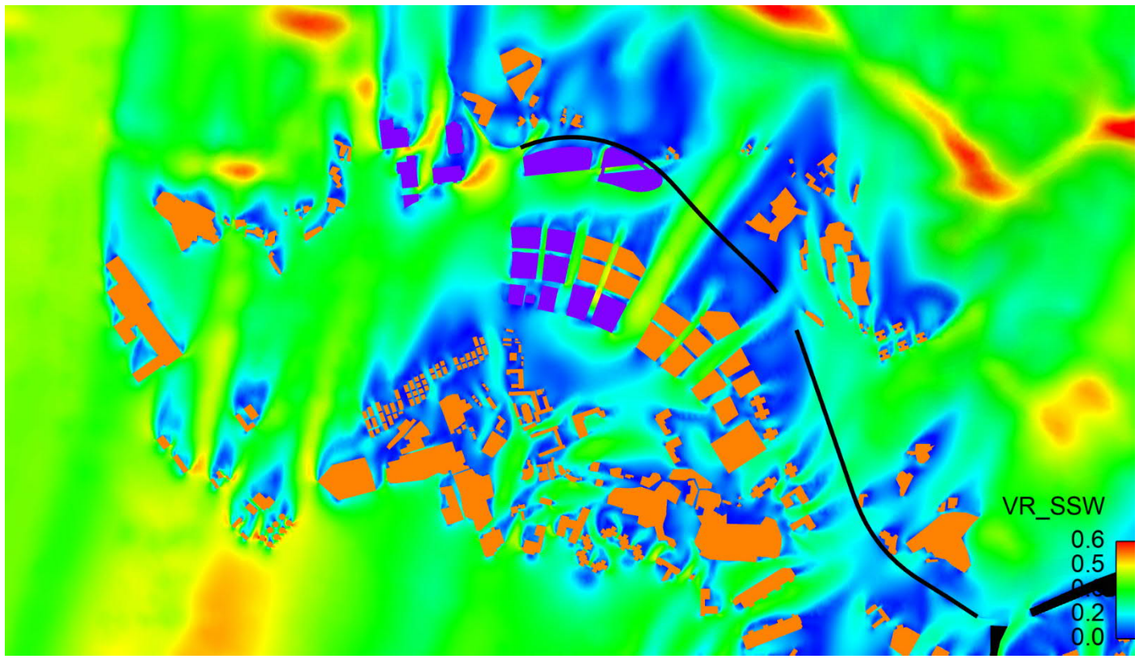

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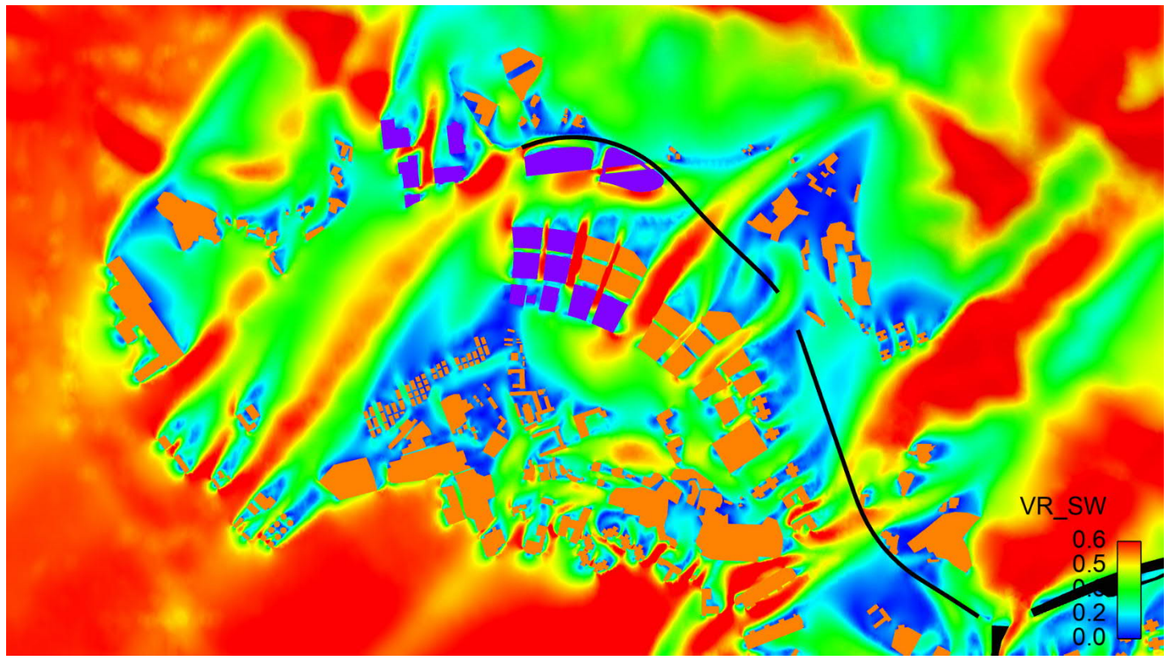
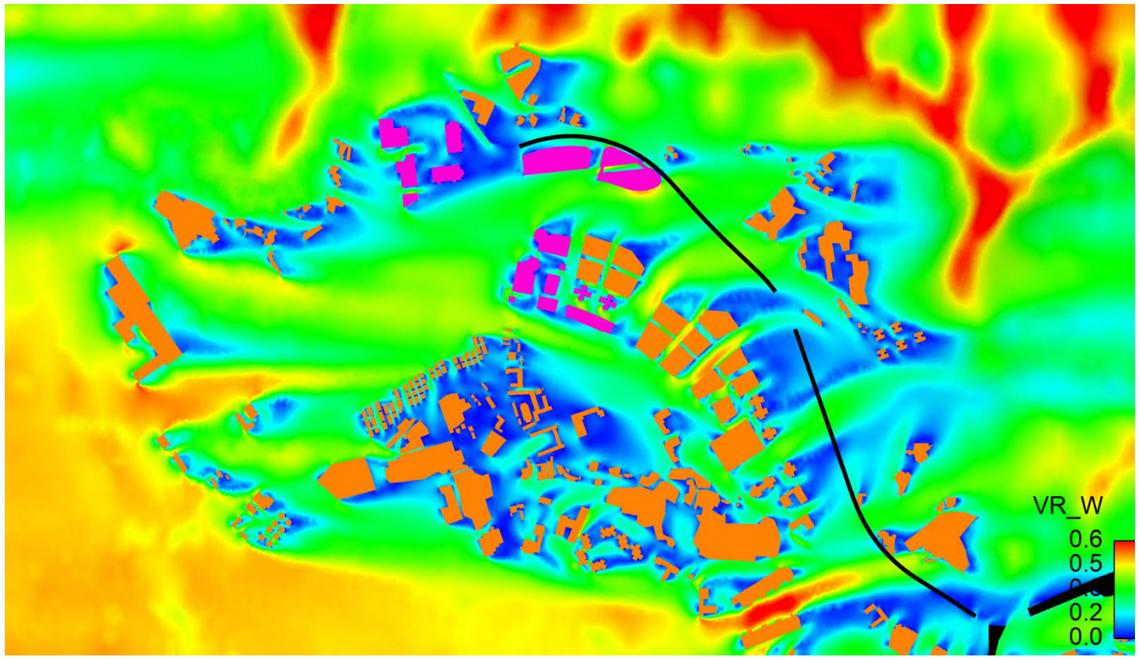
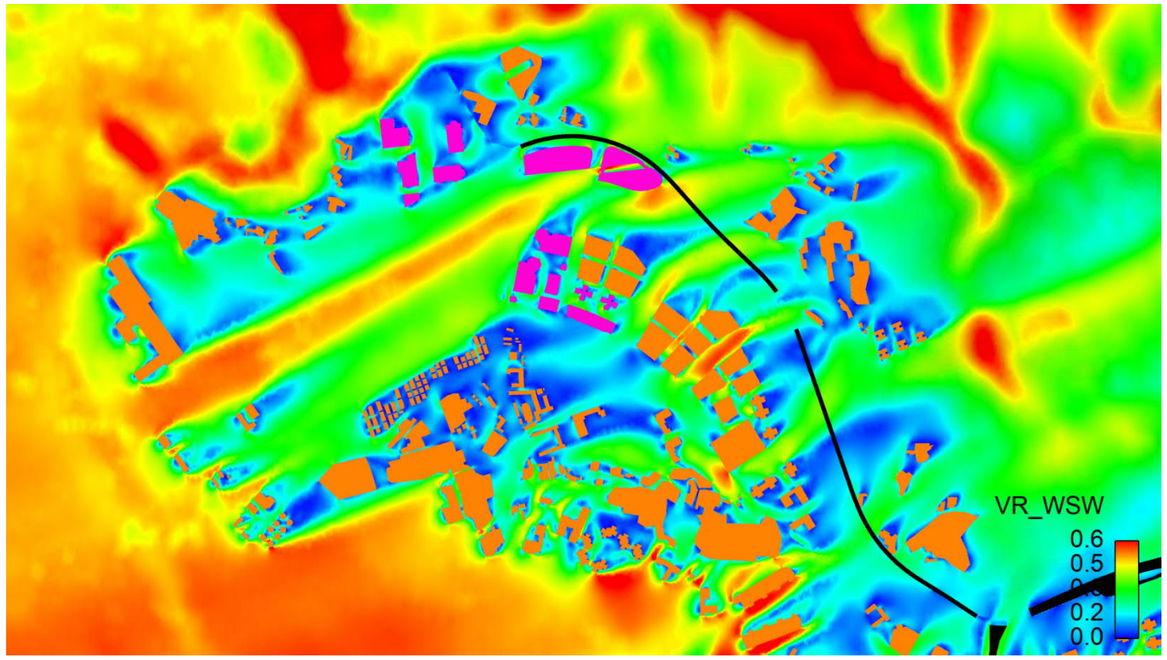


W Wind Condition (Baseline)



WSW Wind Condition (Baseline)



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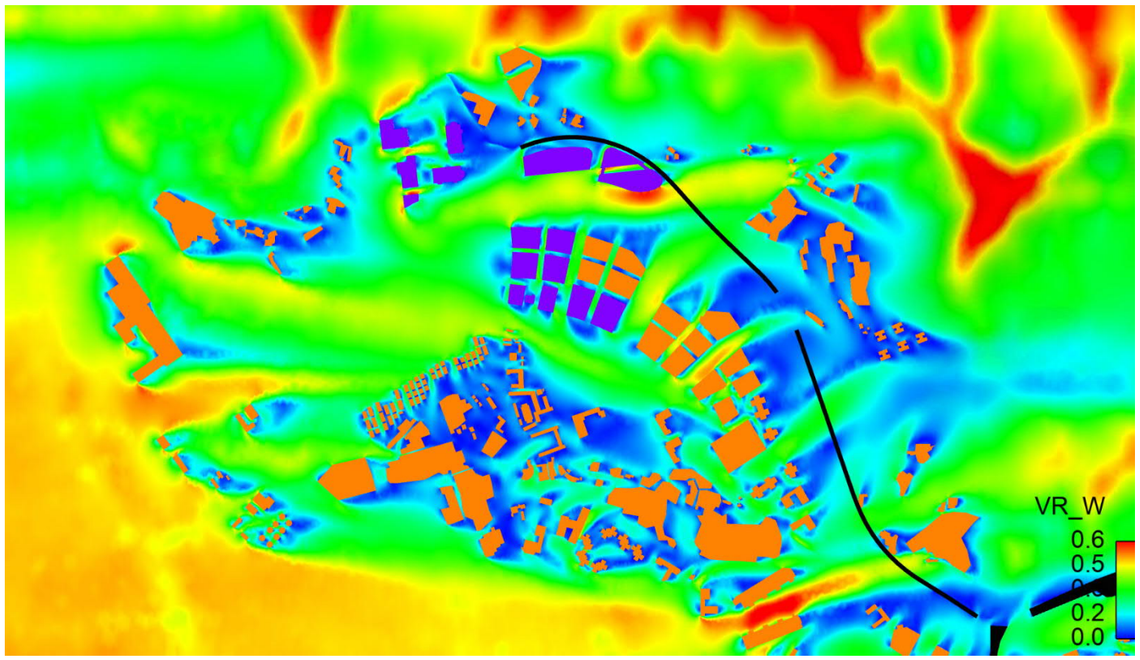

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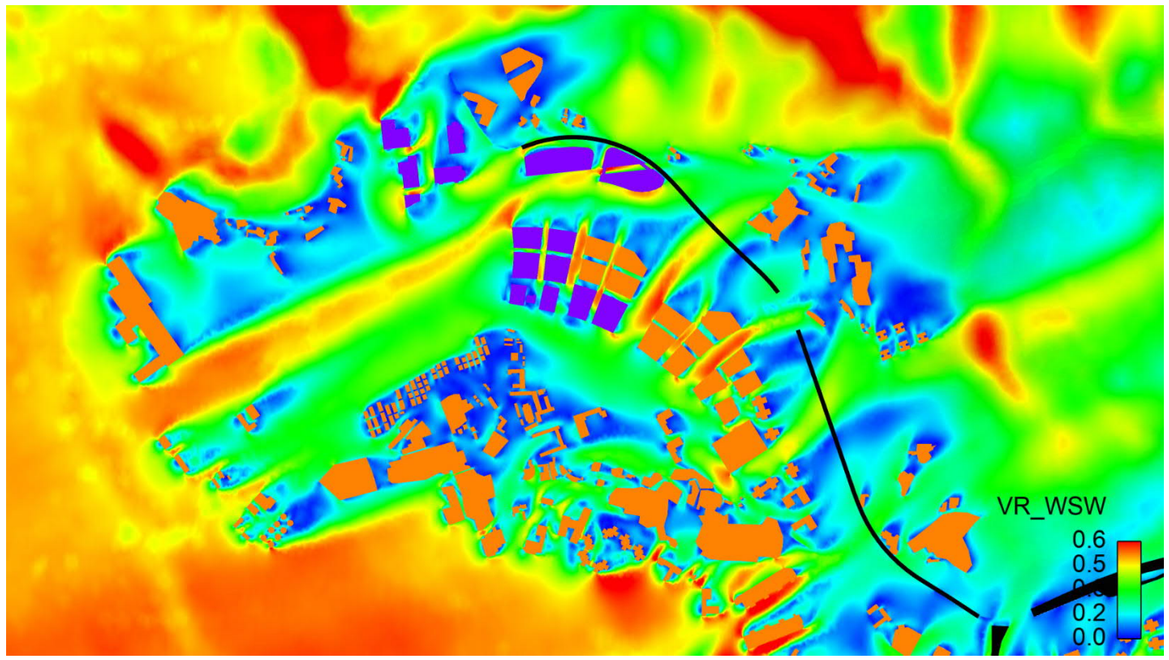
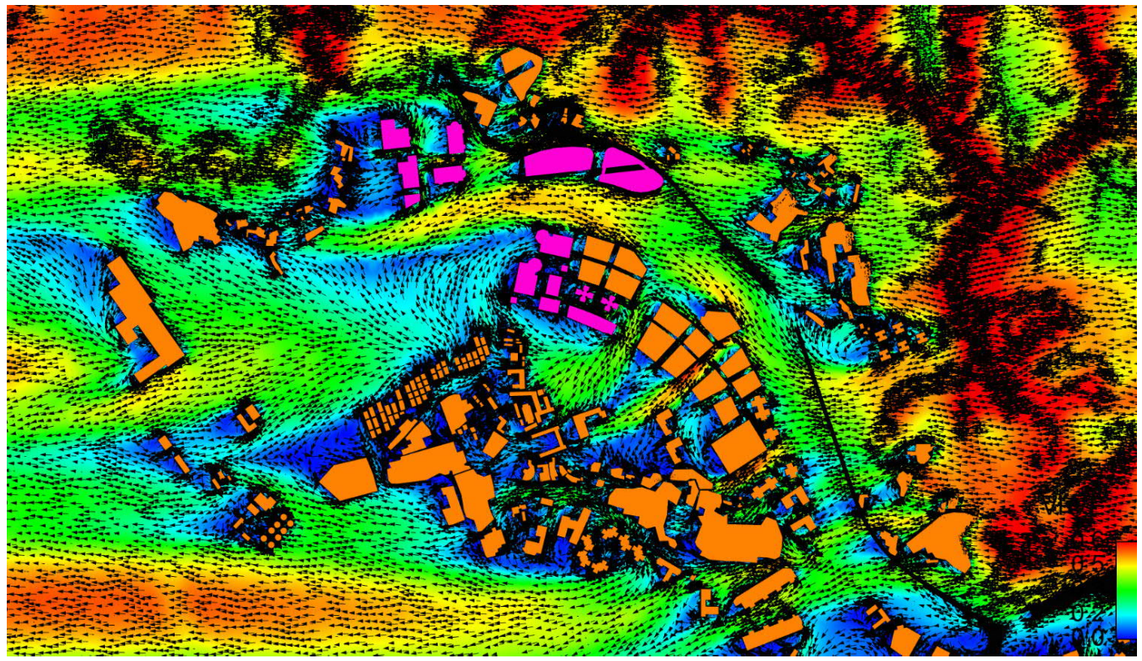


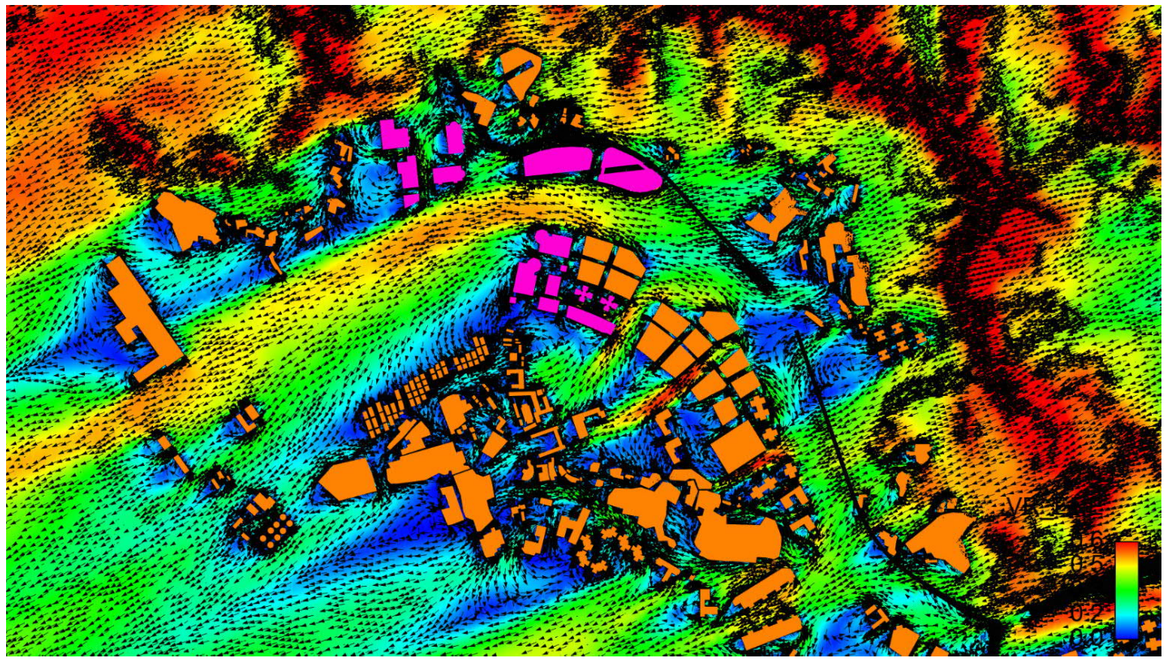
APPENDIX B

VR VECTOR PLOT OF CFD SIMULATION RESULTS

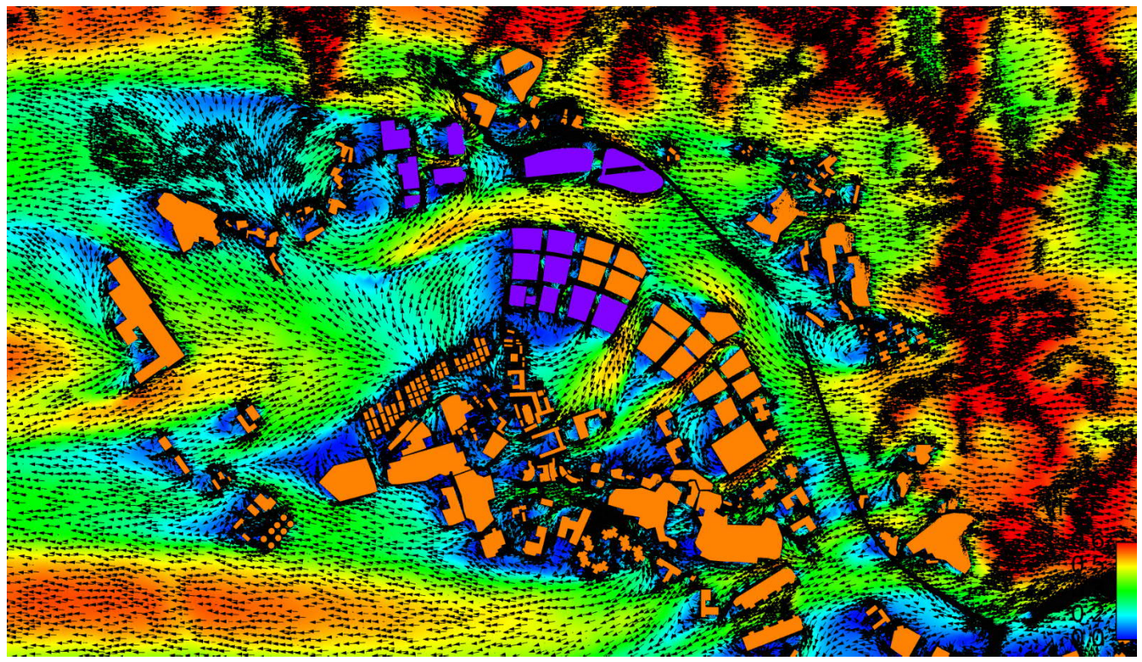
E Wind Condition (Baseline)



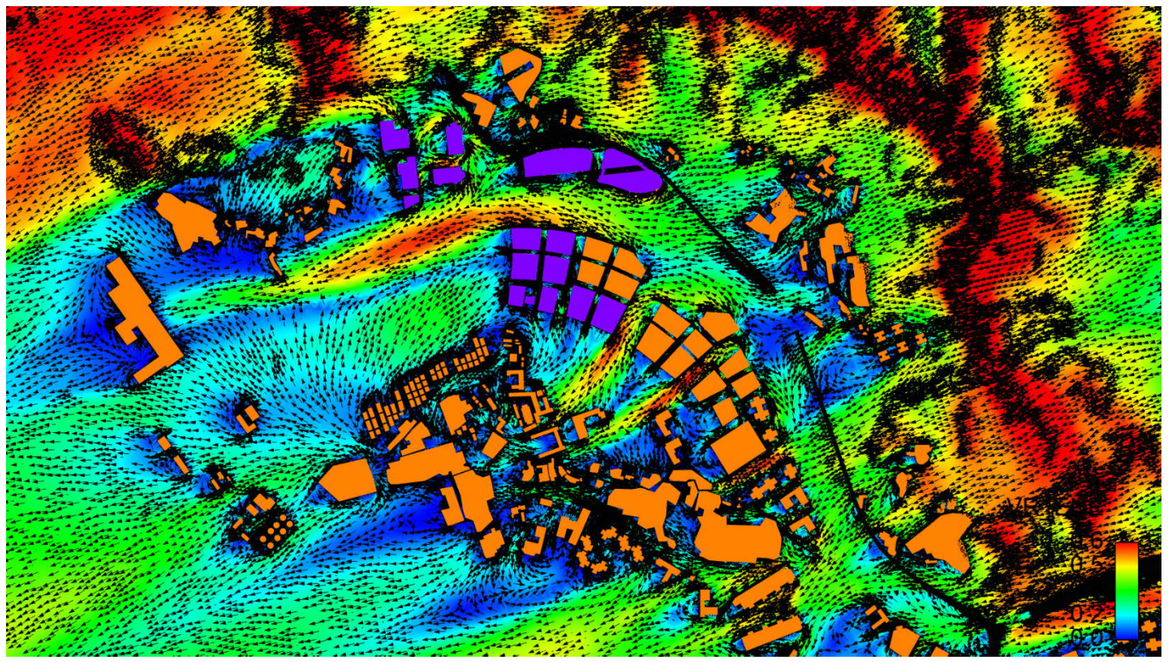
ENE Wind Condition (Baseline)



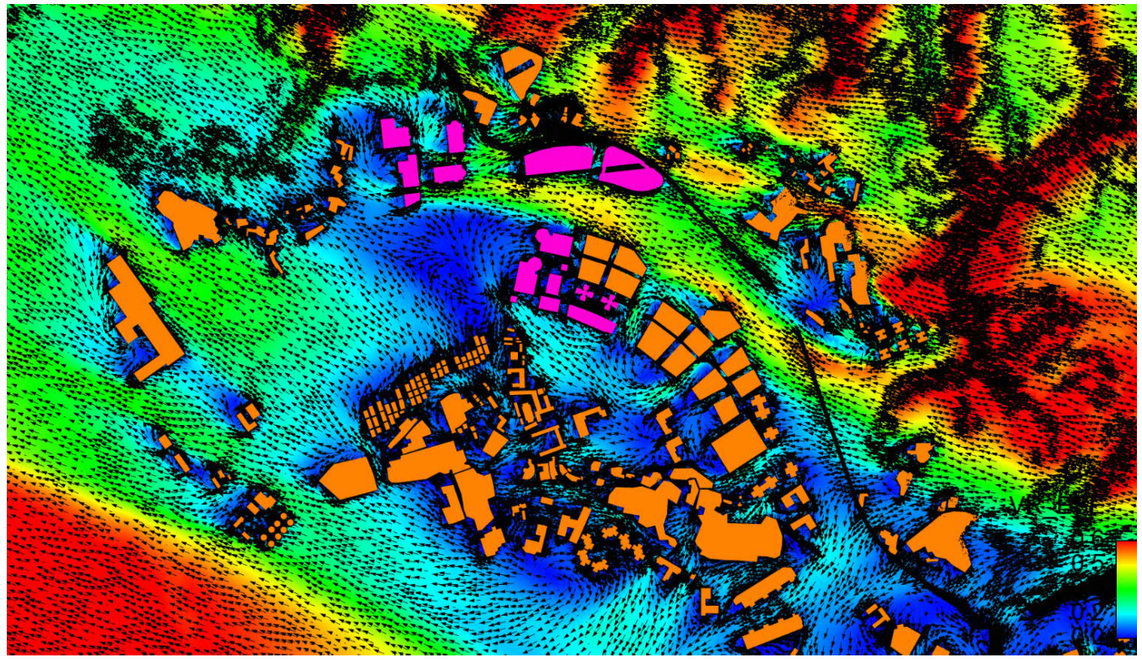
E Wind Condition (Proposed)



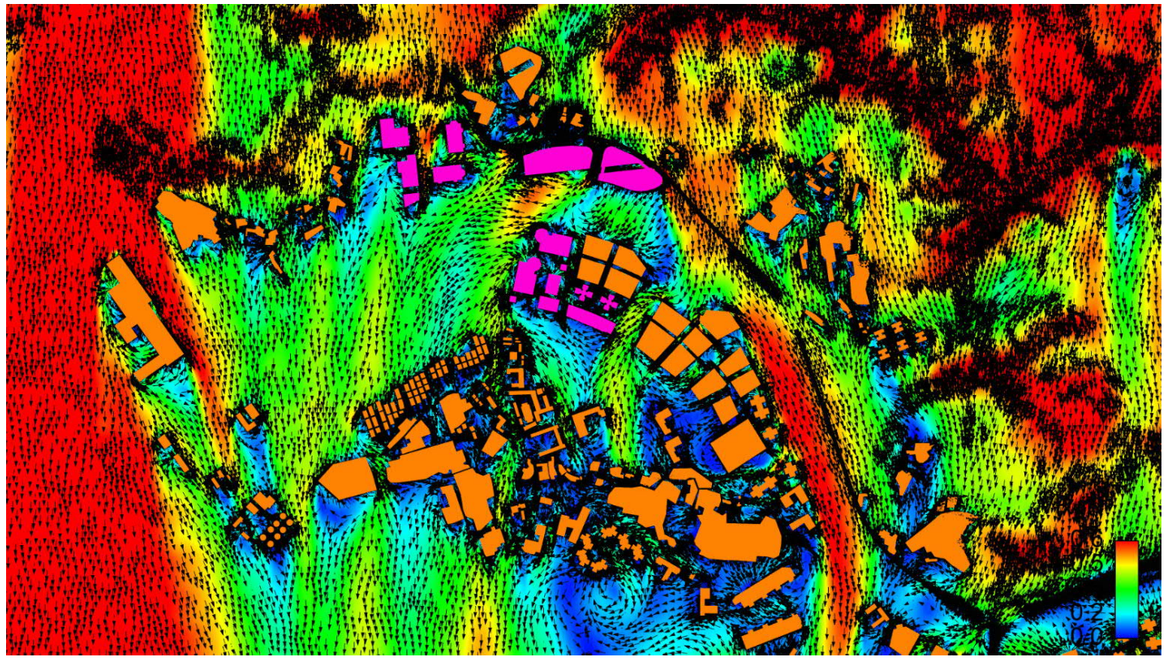
ENE Wind Condition (Proposed)



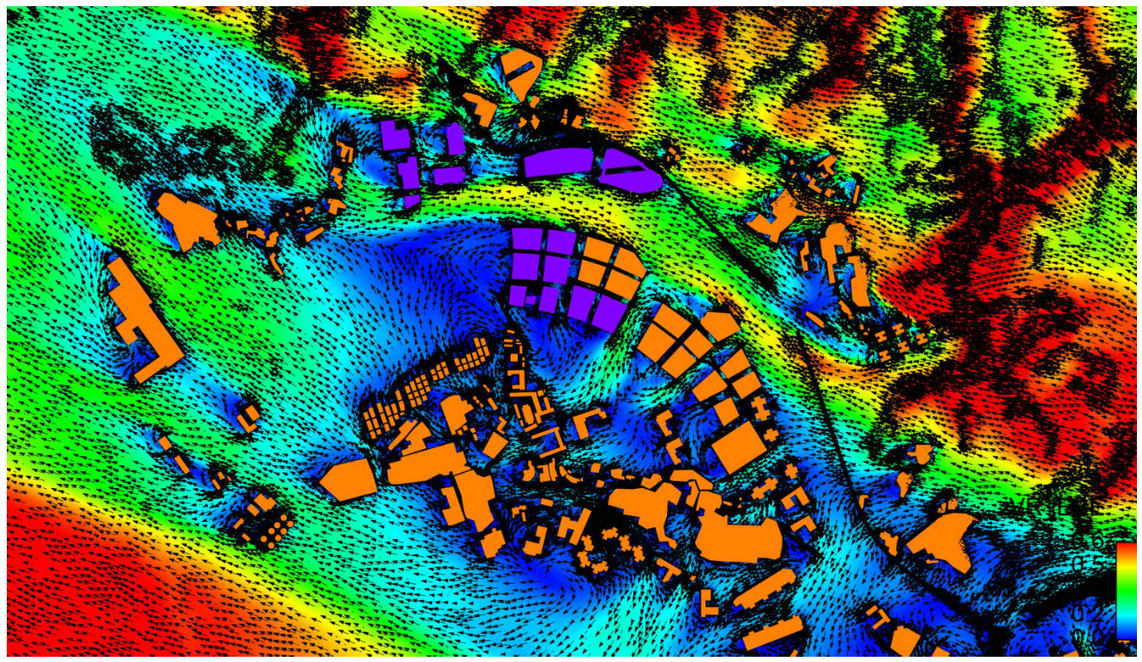
ESE Wind Condition (Baseline)



N Wind Condition (Baseline)



ESE Wind Condition (Proposed)



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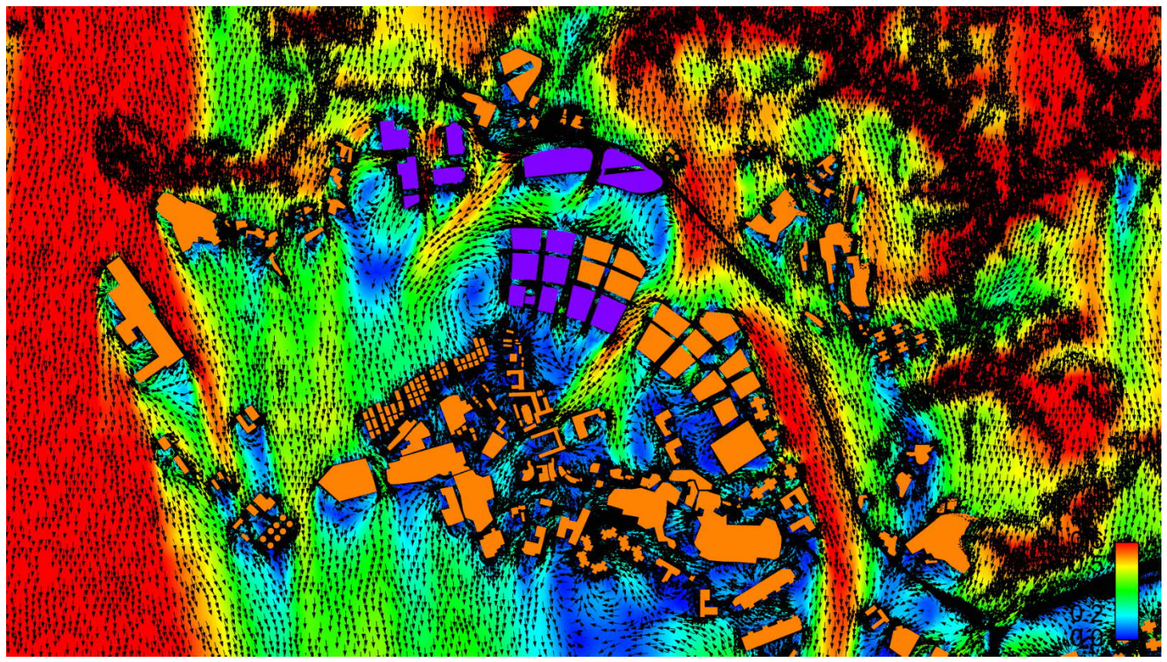

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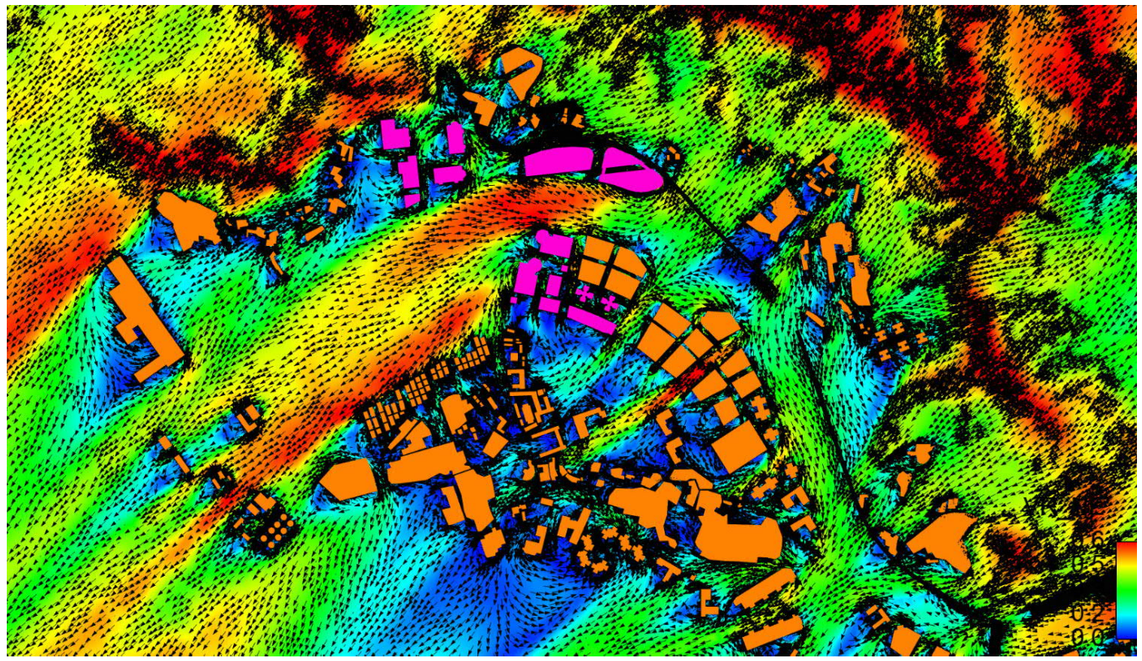

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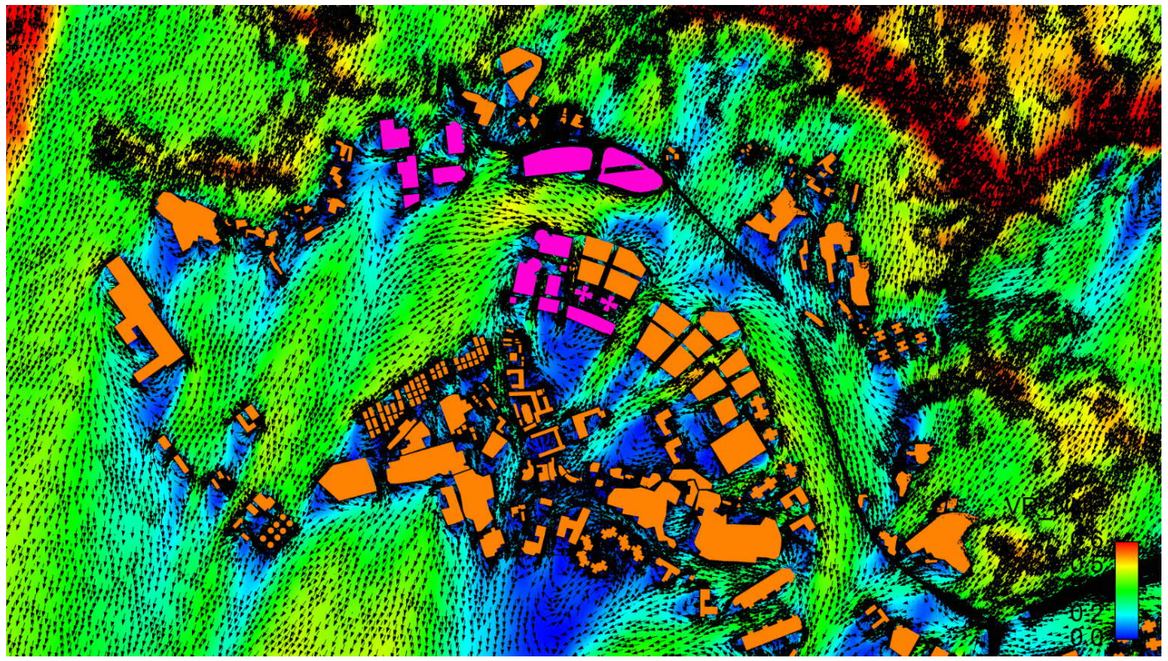
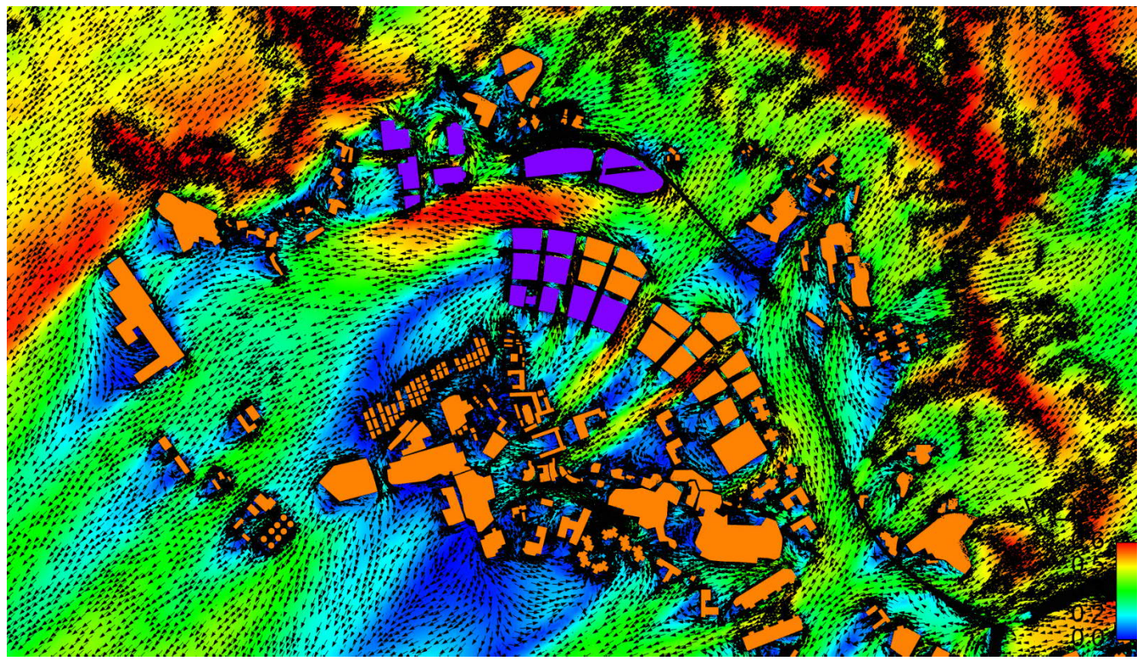
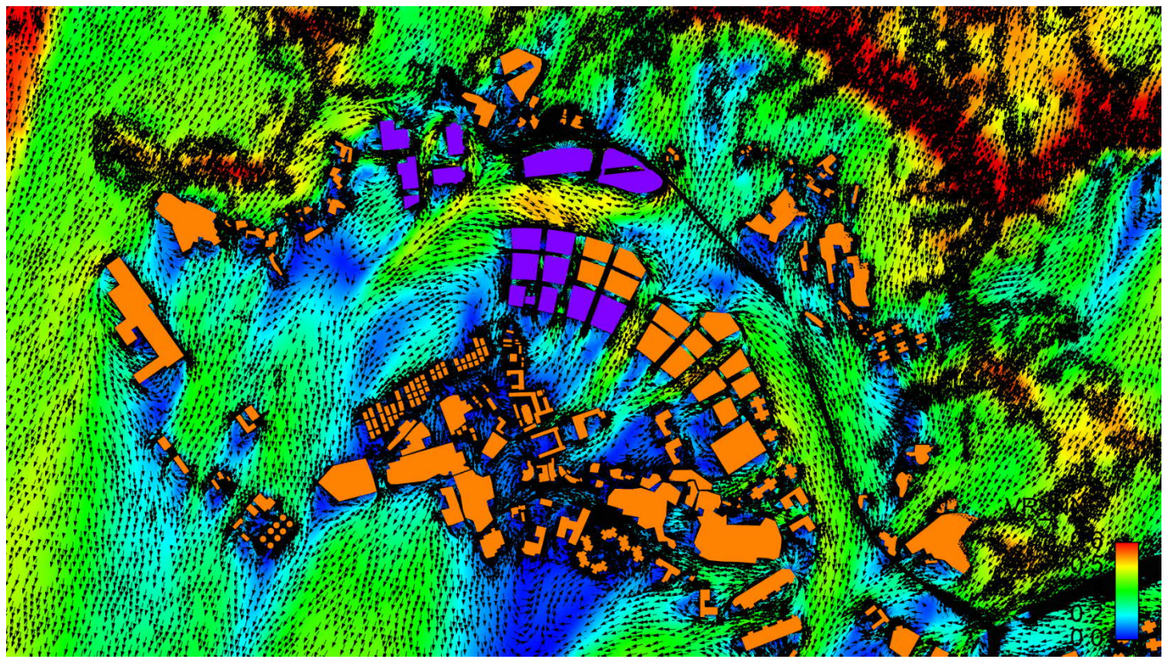


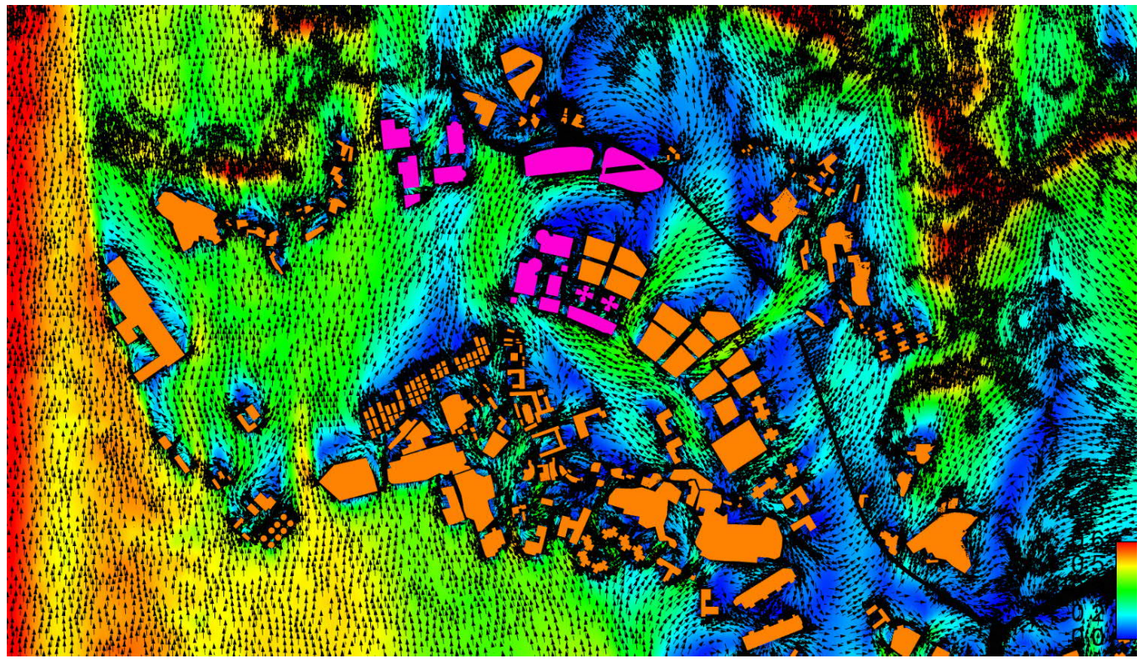
NE Wind Condition (Proposed)



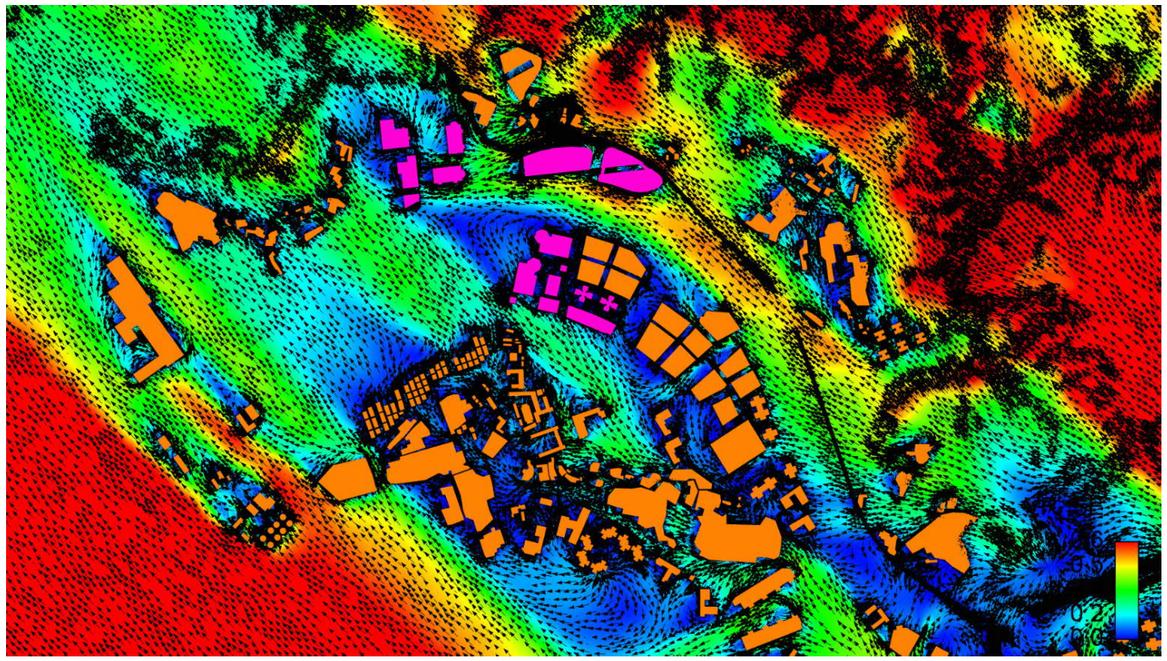
NNE Wind Condition (Proposed)



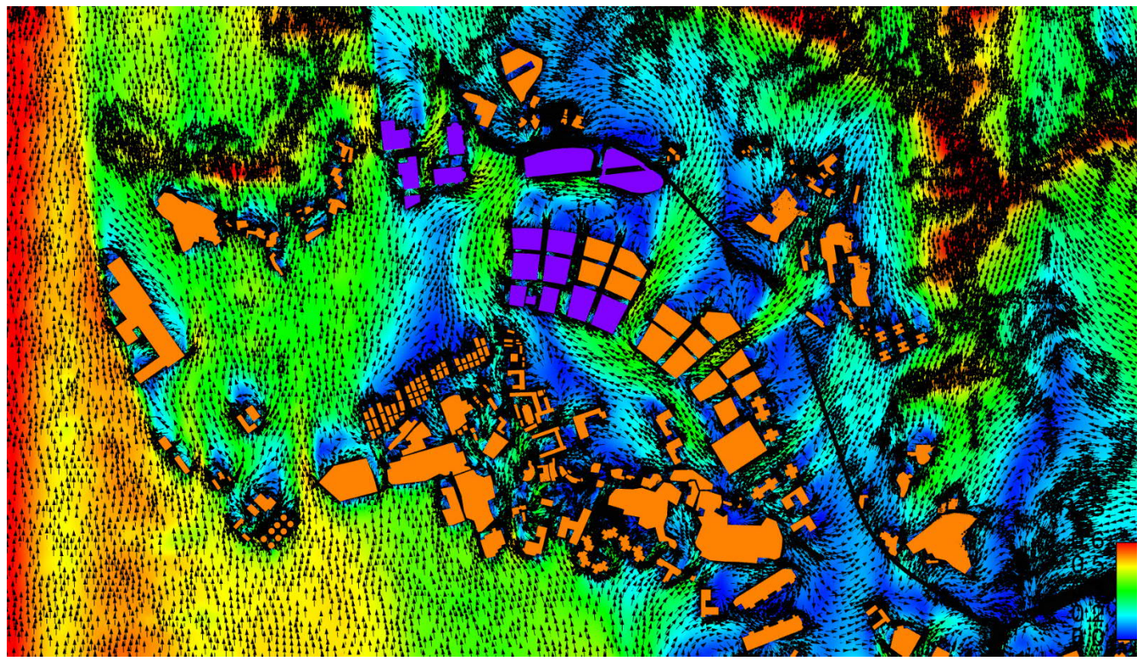
S Wind Condition (Baseline)



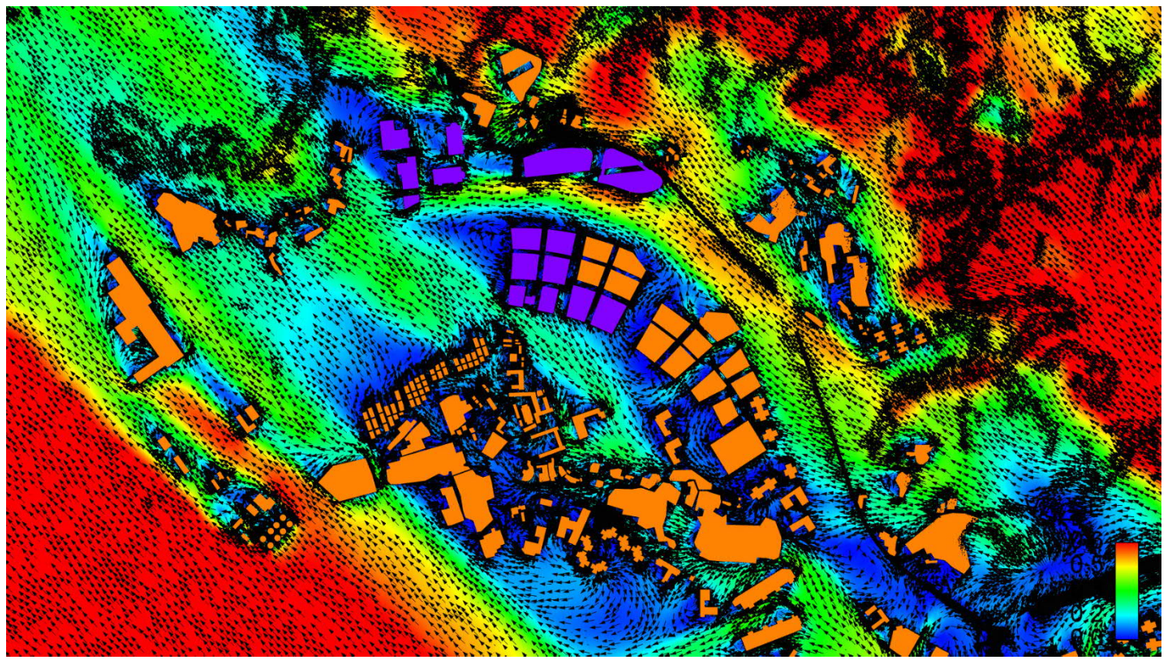
SE Wind Condition (Baseline)



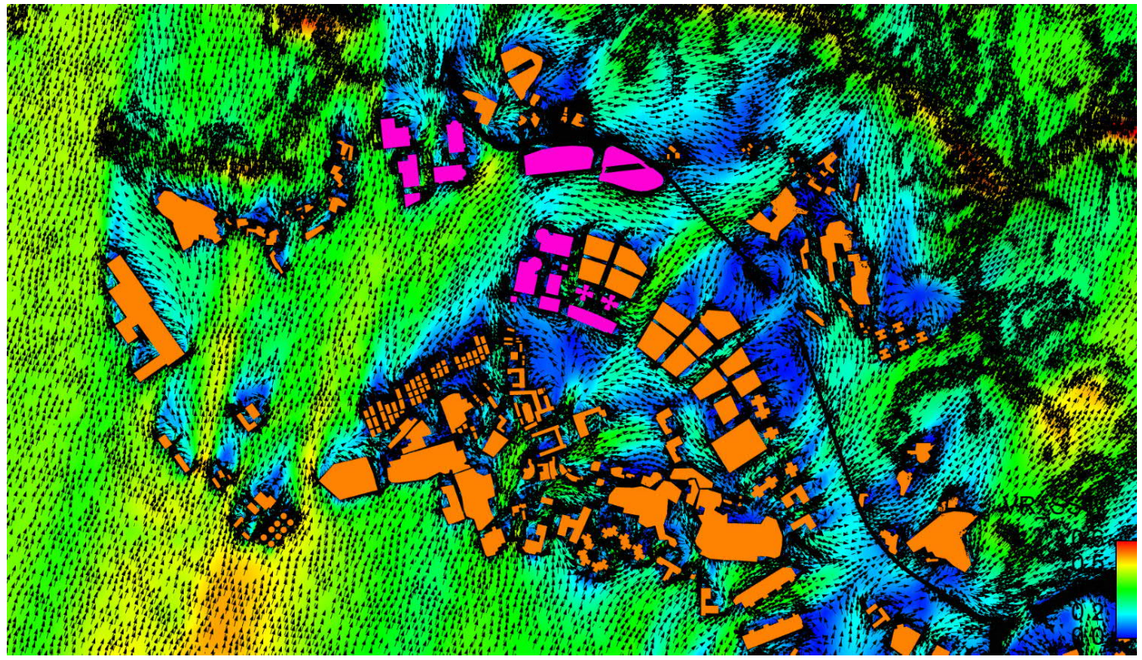
S Wind Condition (Proposed)



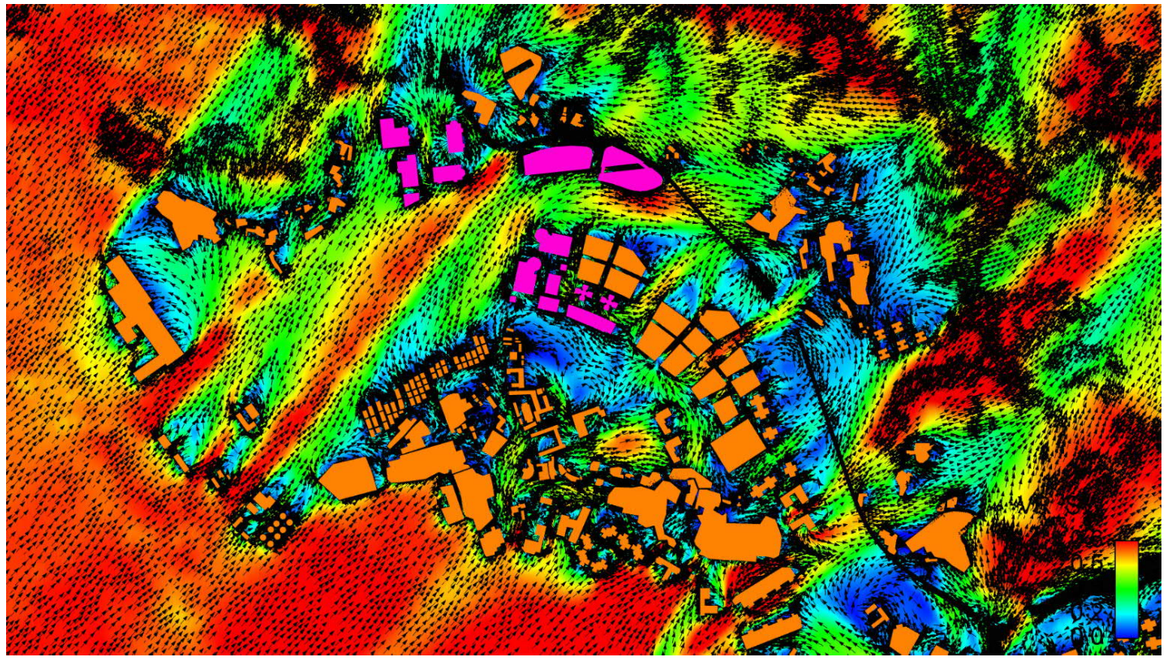
SE Wind Condition (Proposed)



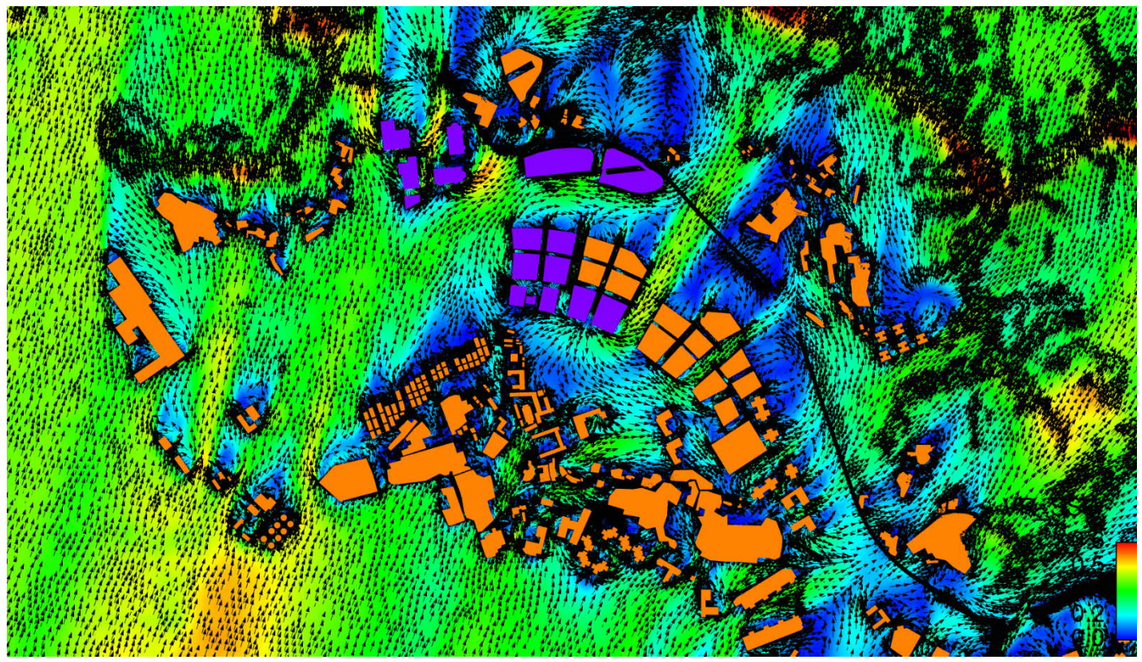
SSW Wind Condition (Baseline)



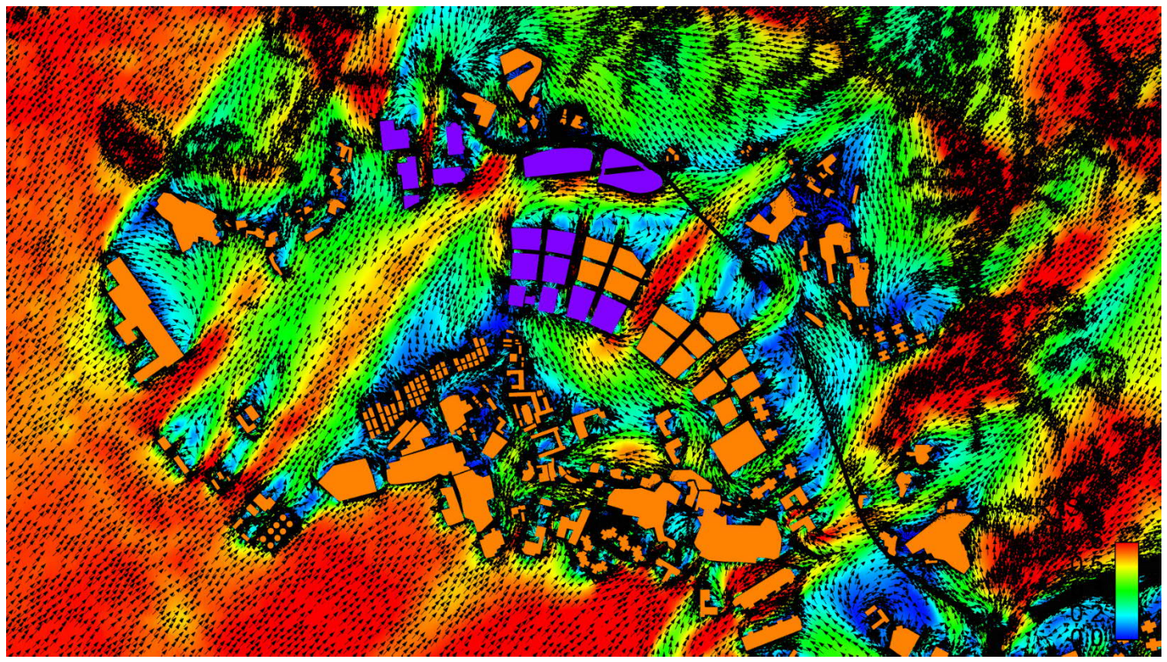
SW Wind Condition (Baseline)



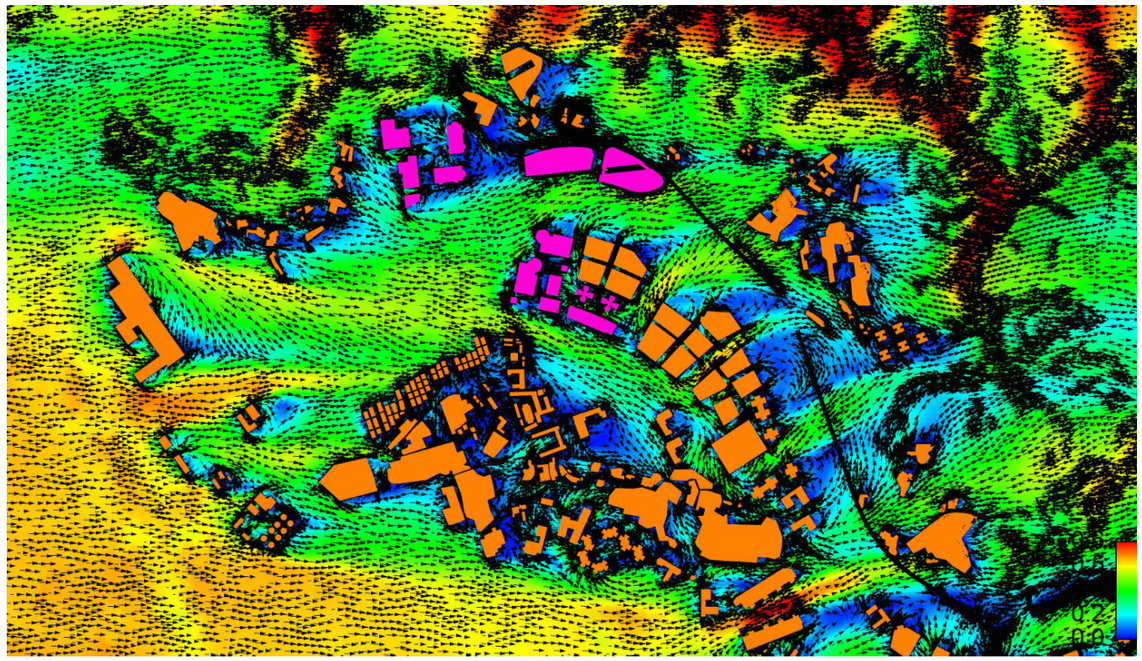
SSW Wind Condition (Proposed)



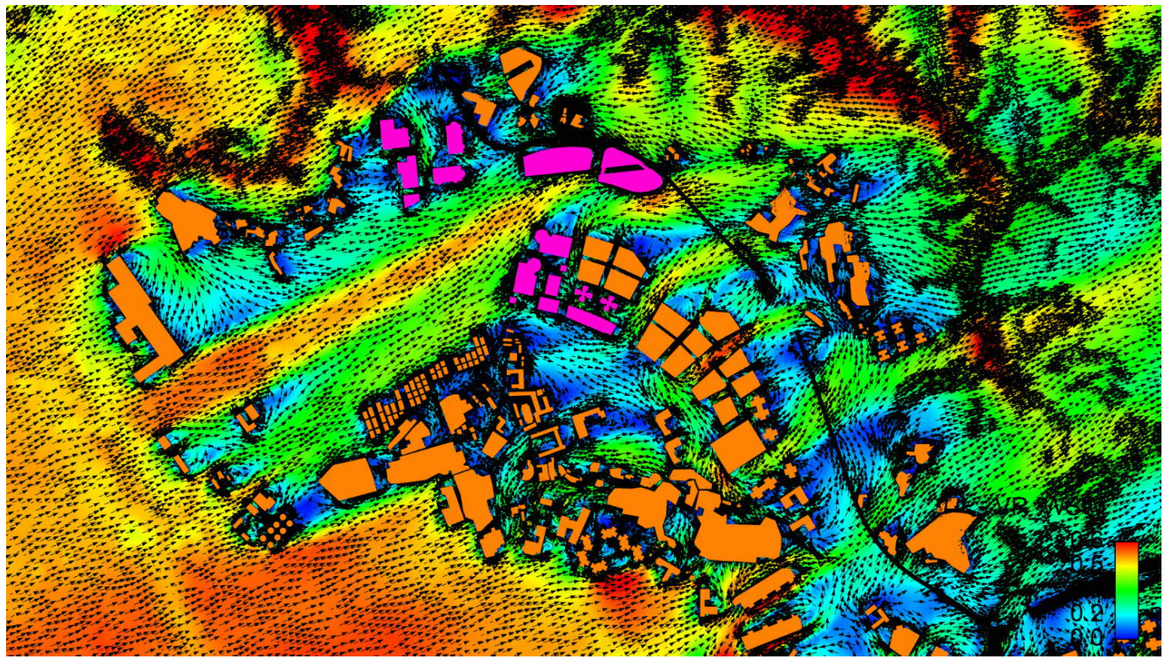
SW Wind Condition (Proposed)



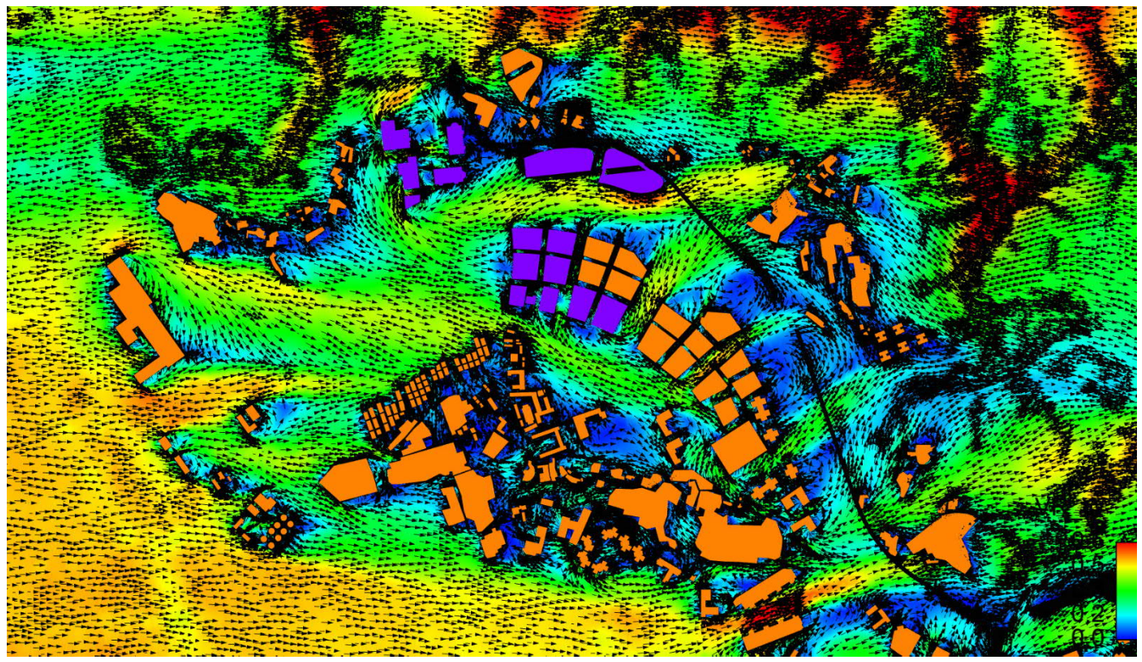
W Wind Condition (Baseline)



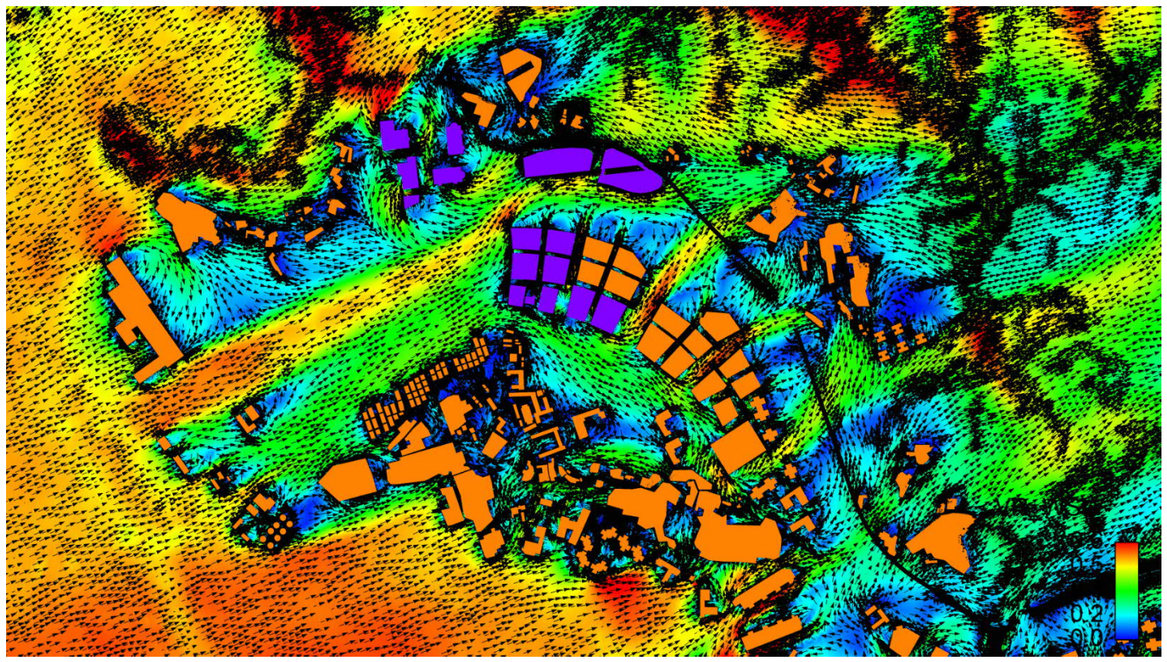
WSW Wind Condition (Baseline)



W Wind Condition (Proposed)



WSW Wind Condition (Proposed)



APPENDIX C

SUMMARY TABLE OF VR AT DIFFERENT TEST POINTS

Annual Wind Condition (Baseline Scheme)

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P01	0.04	0.48	0.37	0.55	0.34	0.09	0.23	**0.28**
P02	0.10	0.52	0.37	0.56	0.34	0.08	0.27	**0.31**
P03	0.05	0.51	0.39	0.58	0.35	0.04	0.40	**0.31**
P04	0.03	0.50	0.29	0.55	0.32	0.06	0.42	**0.28**
P05	0.10	0.42	0.16	0.44	0.22	0.12	0.15	**0.23**
P06	0.17	0.36	0.36	0.43	0.25	0.14	0.24	**0.28**
P07	0.16	0.33	0.42	0.41	0.32	0.12	0.24	**0.28**
P08	0.05	0.22	0.45	0.22	0.32	0.10	0.24	**0.21**
P09	0.28	0.10	0.46	0.05	0.17	0.14	0.29	**0.23**
P10	0.34	0.08	0.39	0.11	0.12	0.20	0.23	**0.23**
P11	0.36	0.08	0.25	0.09	0.02	0.26	0.28	**0.21**
P12	0.38	0.20	0.44	0.20	0.18	0.29	0.34	**0.30**
P13	0.29	0.31	0.32	0.30	0.24	0.19	0.31	**0.29**
P14	0.27	0.29	0.13	0.40	0.28	0.22	0.24	**0.26**
P15	0.36	0.27	0.38	0.41	0.24	0.28	0.16	**0.32**
P16	0.33	0.31	0.26	0.18	0.27	0.23	0.59	**0.30**
P17	0.29	0.26	0.14	0.31	0.31	0.35	0.61	**0.29**
P18	0.42	0.38	0.18	0.31	0.33	0.37	0.52	**0.36**
P19	0.19	0.25	0.19	0.06	0.02	0.39	0.39	**0.19**
P20	0.13	0.14	0.12	0.04	0.05	0.28	0.43	**0.14**
P21	0.15	0.25	0.39	0.13	0.08	0.22	0.45	**0.22**
P22	0.28	0.24	0.27	0.25	0.11	0.16	0.22	**0.24**
P23	0.18	0.19	0.16	0.05	0.03	0.19	0.14	**0.15**
P24	0.05	0.01	0.06	0.10	0.08	0.06	0.25	**0.07**
P25	0.08	0.09	0.13	0.10	0.03	0.08	0.28	**0.10**
P26	0.05	0.06	0.28	0.05	0.09	0.05	0.30	**0.11**
P27	0.22	0.25	0.10	0.19	0.20	0.06	0.24	**0.19**
P28	0.20	0.23	0.16	0.22	0.14	0.08	0.33	**0.19**
P29	0.05	0.17	0.44	0.15	0.08	0.10	0.34	**0.17**
P30	0.02	0.24	0.38	0.48	0.35	0.09	0.15	**0.22**
P31	0.50	0.44	0.52	0.47	0.41	0.39	0.47	**0.47**
P32	0.48	0.39	0.37	0.42	0.34	0.43	0.61	**0.43**
P33	0.49	0.39	0.19	0.41	0.21	0.39	0.57	**0.38**
P34	0.49	0.41	0.09	0.40	0.12	0.32	0.42	**0.35**
P35	0.50	0.42	0.21	0.40	0.09	0.31	0.25	**0.36**
P36	0.50	0.41	0.11	0.37	0.09	0.32	0.30	**0.34**
P37	0.45	0.35	0.36	0.32	0.12	0.45	0.30	**0.36**
P38	0.52	0.44	0.44	0.43	0.37	0.47	0.19	**0.44**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P39	0.62	0.52	0.12	0.43	0.24	0.59	0.38	**0.44**
P40	0.50	0.37	0.16	0.23	0.04	0.49	0.32	**0.33**
P41	0.44	0.25	0.34	0.04	0.15	0.44	0.30	**0.30**
P42	0.52	0.37	0.36	0.07	0.19	0.51	0.33	**0.37**
P43	0.34	0.07	0.75	0.27	0.44	0.36	0.09	**0.34**
P44	0.21	0.25	0.68	0.39	0.44	0.15	0.40	**0.34**
P45	0.45	0.45	0.13	0.40	0.32	0.30	0.59	**0.38**
P46	0.51	0.43	0.15	0.29	0.26	0.40	0.68	**0.39**
P47	0.48	0.39	0.06	0.32	0.33	0.41	0.64	**0.37**
P48	0.42	0.37	0.09	0.37	0.33	0.37	0.53	**0.35**
P49	0.37	0.34	0.16	0.34	0.21	0.34	0.33	**0.30**
P50	0.23	0.22	0.61	0.24	0.19	0.26	0.32	**0.29**
P51	0.34	0.32	0.15	0.39	0.30	0.32	0.33	**0.31**
P52	0.35	0.32	0.45	0.45	0.34	0.36	0.33	**0.37**
P53	0.30	0.25	0.44	0.45	0.36	0.35	0.27	**0.34**
P54	0.33	0.30	0.44	0.50	0.39	0.39	0.21	**0.36**
P55	0.03	0.03	0.09	0.06	0.07	0.04	0.20	**0.06**
P56	0.13	0.14	0.16	0.16	0.10	0.12	0.35	**0.15**
P57	0.20	0.45	0.49	0.60	0.42	0.01	0.51	**0.37**
P58	0.16	0.41	0.48	0.63	0.43	0.06	0.47	**0.35**
P59	0.20	0.39	0.38	0.63	0.48	0.06	0.31	**0.34**
P60	0.13	0.18	0.08	0.42	0.45	0.01	0.25	**0.20**
P61	0.15	0.18	0.08	0.37	0.42	0.03	0.27	**0.20**
P62	0.15	0.17	0.23	0.38	0.33	0.15	0.17	**0.21**
P63	0.10	0.18	0.16	0.38	0.31	0.18	0.37	**0.20**
P64	0.21	0.18	0.23	0.52	0.51	0.10	0.40	**0.28**
P65	0.02	0.08	0.21	0.35	0.42	0.04	0.30	**0.16**
P66	0.10	0.06	0.23	0.27	0.35	0.01	0.39	**0.17**
P67	0.22	0.32	0.20	0.02	0.02	0.07	0.38	**0.19**
P68	0.08	0.09	0.12	0.22	0.12	0.04	0.07	**0.11**
P69	0.06	0.02	0.06	0.02	0.04	0.11	0.14	**0.05**
P70	0.08	0.02	0.12	0.20	0.24	0.14	0.14	**0.11**
P71	0.09	0.14	0.05	0.00	0.11	0.15	0.12	**0.09**
P72	0.09	0.01	0.10	0.02	0.11	0.13	0.08	**0.07**
P73	0.01	0.09	0.32	0.35	0.17	0.02	0.14	**0.14**
P74	0.03	0.12	0.21	0.41	0.22	0.03	0.21	**0.15**
P75	0.06	0.16	0.34	0.34	0.19	0.03	0.31	**0.18**
P76	0.14	0.16	0.30	0.13	0.16	0.06	0.41	**0.18**
P77	0.09	0.10	0.36	0.30	0.21	0.06	0.47	**0.19**
P78	0.13	0.12	0.18	0.49	0.49	0.08	0.25	**0.22**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P79	0.22	0.22	0.19	0.36	0.27	0.02	0.26	**0.23**
P80	0.24	0.51	0.34	0.42	0.31	0.23	0.35	**0.35**
P81	0.17	0.54	0.38	0.44	0.34	0.08	0.39	**0.33**
P82	0.20	0.50	0.36	0.43	0.33	0.06	0.06	**0.31**
P83	0.06	0.25	0.03	0.12	0.06	0.12	0.10	**0.10**
P84	0.06	0.05	0.07	0.03	0.06	0.12	0.10	**0.06**
O01	0.53	0.41	0.45	0.36	0.29	0.40	0.37	**0.43**
O02	0.50	0.43	0.46	0.40	0.27	0.32	0.15	**0.41**
O03	0.39	0.38	0.47	0.39	0.26	0.36	0.22	**0.37**
O04	0.22	0.37	0.48	0.42	0.29	0.19	0.22	**0.32**
O05	0.22	0.10	0.47	0.13	0.13	0.20	0.20	**0.21**
O06	0.27	0.25	0.58	0.35	0.33	0.21	0.44	**0.34**
O07	0.34	0.26	0.52	0.38	0.23	0.30	0.50	**0.35**
O08	0.31	0.27	0.52	0.34	0.21	0.31	0.31	**0.33**
O09	0.29	0.26	0.51	0.33	0.20	0.30	0.28	**0.31**
O10	0.27	0.17	0.48	0.08	0.14	0.28	0.28	**0.25**
O11	0.29	0.15	0.43	0.02	0.08	0.26	0.13	**0.22**
O12	0.27	0.18	0.49	0.07	0.18	0.28	0.29	**0.26**
O13	0.30	0.28	0.53	0.34	0.22	0.30	0.31	**0.33**
O14	0.32	0.31	0.53	0.37	0.18	0.31	0.49	**0.35**
O15	0.45	0.39	0.20	0.32	0.30	0.37	0.64	**0.38**
O16	0.41	0.43	0.08	0.42	0.39	0.26	0.58	**0.36**
O17	0.31	0.32	0.52	0.33	0.24	0.32	0.45	**0.35**
O18	0.24	0.22	0.46	0.33	0.17	0.24	0.36	**0.28**
O19	0.07	0.13	0.28	0.23	0.19	0.03	0.21	**0.15**
O20	0.13	0.08	0.27	0.36	0.28	0.14	0.10	**0.18**
O21	0.06	0.04	0.06	0.04	0.04	0.09	0.08	**0.05**
O22	0.36	0.31	0.50	0.31	0.27	0.38	0.07	**0.34**
O23	0.41	0.35	0.46	0.29	0.29	0.42	0.11	**0.36**
O24	0.37	0.25	0.51	0.37	0.35	0.32	0.12	**0.35**
O25	0.39	0.31	0.40	0.38	0.32	0.52	0.08	**0.36**
O26	0.35	0.33	0.46	0.37	0.35	0.50	0.07	**0.36**
O27	0.15	0.26	0.18	0.12	0.12	0.19	0.01	**0.16**
O28	0.13	0.16	0.23	0.13	0.17	0.15	0.02	**0.15**
O29	0.05	0.06	0.27	0.13	0.17	0.09	0.06	**0.11**
O30	0.24	0.44	0.37	0.37	0.27	0.21	0.07	**0.31**
O31	0.23	0.18	0.24	0.30	0.19	0.25	0.13	**0.22**
O32	0.04	0.32	0.14	0.35	0.09	0.10	0.15	**0.16**
O33	0.33	0.19	0.55	0.40	0.38	0.32	0.54	**0.37**
O34	0.55	0.56	0.31	0.61	0.45	0.17	0.49	**0.48**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O35	0.54	0.58	0.19	0.63	0.46	0.18	0.35	**0.46**
O36	0.26	0.40	0.48	0.46	0.44	0.05	0.16	**0.34**
O37	0.25	0.19	0.25	0.05	0.16	0.05	0.26	**0.19**
O38	0.09	0.12	0.20	0.13	0.14	0.03	0.35	**0.14**
O39	0.23	0.37	0.47	0.45	0.40	0.06	0.53	**0.34**
O40	0.06	0.21	0.42	0.33	0.33	0.03	0.52	**0.23**
O41	0.43	0.46	0.14	0.48	0.39	0.33	0.13	**0.37**
O42	0.44	0.34	0.17	0.22	0.16	0.45	0.36	**0.32**
O43	0.22	0.05	0.11	0.21	0.20	0.28	0.05	**0.16**
O44	0.20	0.24	0.10	0.12	0.05	0.26	0.28	**0.18**
O45	0.40	0.28	0.21	0.40	0.33	0.28	0.31	**0.32**
O46	0.25	0.43	0.37	0.42	0.34	0.17	0.48	**0.34**
O47	0.40	0.41	0.39	0.33	0.34	0.21	0.27	**0.37**
O48	0.53	0.39	0.08	0.29	0.21	0.35	0.46	**0.35**
O49	0.28	0.39	0.21	0.34	0.33	0.23	0.42	**0.31**
O50	0.25	0.21	0.04	0.21	0.11	0.03	0.19	**0.17**
O51	0.12	0.05	0.05	0.09	0.05	0.05	0.26	**0.09**
O52	0.29	0.26	0.16	0.24	0.22	0.12	0.26	**0.24**
O53	0.16	0.05	0.06	0.07	0.06	0.07	0.34	**0.10**
O54	0.04	0.05	0.15	0.01	0.05	0.03	0.34	**0.07**
O55	0.07	0.07	0.05	0.06	0.05	0.03	0.13	**0.06**
O56	0.48	0.56	0.10	0.53	0.37	0.22	0.21	**0.40**
O57	0.21	0.12	0.24	0.01	0.18	0.17	0.03	**0.16**
O58	0.16	0.09	0.15	0.06	0.05	0.15	0.08	**0.12**
O59	0.26	0.21	0.16	0.14	0.04	0.16	0.09	**0.18**
O60	0.34	0.34	0.36	0.09	0.30	0.11	0.10	**0.28**
O61	0.12	0.19	0.25	0.20	0.21	0.10	0.23	**0.18**
O62	0.45	0.54	0.10	0.52	0.09	0.04	0.25	**0.34**
O63	0.06	0.05	0.12	0.05	0.02	0.02	0.49	**0.09**
O64	0.04	0.09	0.24	0.04	0.06	0.07	0.30	**0.10**
O65	0.10	0.11	0.05	0.07	0.08	0.13	0.42	**0.11**
O66	0.04	0.13	0.23	0.14	0.06	0.12	0.20	**0.12**
O67	0.25	0.27	0.16	0.11	0.15	0.09	0.39	**0.21**
O68	0.04	0.12	0.10	0.02	0.01	0.06	0.09	**0.06**
O69	0.16	0.14	0.27	0.12	0.11	0.03	0.01	**0.15**
O70	0.07	0.08	0.33	0.19	0.27	0.09	0.16	**0.16**
O71	0.06	0.10	0.38	0.21	0.19	0.06	0.17	**0.16**
O72	0.24	0.16	0.21	0.03	0.14	0.16	0.01	**0.17**
O73	0.26	0.19	0.27	0.04	0.20	0.11	0.14	**0.20**
O74	0.26	0.38	0.16	0.42	0.18	0.07	0.29	**0.26**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O75	0.29	0.25	0.34	0.12	0.10	0.05	0.37	**0.24**
O76	0.08	0.11	0.06	0.03	0.06	0.01	0.06	**0.07**
O77	0.15	0.18	0.02	0.04	0.07	0.07	0.19	**0.11**
O78	0.03	0.01	0.21	0.03	0.14	0.10	0.05	**0.07**
O79	0.04	0.14	0.03	0.02	0.05	0.06	0.03	**0.06**
O80	0.13	0.10	0.17	0.21	0.16	0.08	0.30	**0.15**
O81	0.06	0.06	0.20	0.35	0.24	0.09	0.20	**0.15**
O82	0.18	0.09	0.24	0.48	0.34	0.19	0.17	**0.22**
O83	0.14	0.11	0.23	0.42	0.30	0.15	0.16	**0.20**
O84	0.15	0.15	0.17	0.22	0.22	0.12	0.17	**0.17**
O85	0.22	0.24	0.36	0.45	0.29	0.14	0.31	**0.28**
O86	0.17	0.18	0.26	0.52	0.36	0.10	0.18	**0.24**
O87	0.15	0.10	0.20	0.57	0.36	0.08	0.28	**0.22**
O88	0.10	0.04	0.32	0.40	0.26	0.00	0.16	**0.17**
O89	0.08	0.06	0.36	0.01	0.25	0.08	0.23	**0.14**
O90	0.09	0.17	0.20	0.08	0.24	0.11	0.28	**0.15**
O91	0.10	0.08	0.27	0.12	0.27	0.10	0.22	**0.15**
O92	0.14	0.17	0.39	0.27	0.28	0.09	0.18	**0.21**
O93	0.16	0.07	0.41	0.30	0.23	0.09	0.15	**0.20**
O94	0.10	0.03	0.39	0.34	0.17	0.07	0.11	**0.17**
O95	0.15	0.08	0.36	0.39	0.20	0.16	0.16	**0.20**
O96	0.09	0.14	0.34	0.35	0.20	0.03	0.31	**0.19**
O97	0.14	0.22	0.32	0.26	0.24	0.05	0.46	**0.22**
O98	0.32	0.49	0.43	0.57	0.43	0.02	0.44	**0.40**
O99	0.41	0.51	0.28	0.55	0.33	0.02	0.51	**0.40**
O100	0.32	0.51	0.24	0.51	0.27	0.03	0.55	**0.36**
O101	0.05	0.49	0.37	0.49	0.21	0.06	0.54	**0.28**
O102	0.46	0.49	0.15	0.50	0.42	0.28	0.31	**0.40**
O103	0.45	0.42	0.31	0.30	0.07	0.46	0.33	**0.36**
O104	0.33	0.23	0.18	0.13	0.11	0.36	0.02	**0.22**
O105	0.40	0.22	0.30	0.22	0.11	0.39	0.42	**0.30**
O106	0.48	0.35	0.30	0.27	0.11	0.52	0.27	**0.35**
O107	0.25	0.39	0.25	0.31	0.16	0.23	0.05	**0.26**
O108	0.33	0.22	0.03	0.28	0.18	0.40	0.33	**0.24**
O109	0.10	0.47	0.18	0.42	0.25	0.13	0.43	**0.26**
O110	0.29	0.14	0.27	0.17	0.23	0.12	0.36	**0.23**
O111	0.19	0.04	0.14	0.18	0.17	0.10	0.34	**0.15**
O112	0.04	0.09	0.25	0.15	0.16	0.09	0.35	**0.13**
O113	0.15	0.06	0.11	0.03	0.20	0.08	0.36	**0.12**
O114	0.40	0.35	0.26	0.28	0.14	0.06	0.44	**0.31**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O115	0.22	0.47	0.22	0.40	0.20	0.09	0.44	**0.29**
O116	0.32	0.12	0.16	0.10	0.23	0.09	0.36	**0.21**
O117	0.17	0.21	0.39	0.25	0.15	0.37	0.07	**0.22**
O118	0.13	0.14	0.39	0.24	0.24	0.39	0.06	**0.21**
O119	0.39	0.30	0.13	0.10	0.04	0.39	0.23	**0.25**
O120	0.33	0.33	0.23	0.31	0.27	0.34	0.24	**0.30**
O121	0.16	0.10	0.09	0.12	0.06	0.14	0.14	**0.12**
O122	0.07	0.23	0.26	0.19	0.33	0.10	0.15	**0.18**
O123	0.09	0.08	0.42	0.32	0.29	0.12	0.28	**0.20**
O124	0.09	0.12	0.44	0.07	0.25	0.06	0.28	**0.18**
O125	0.07	0.23	0.40	0.16	0.22	0.09	0.20	**0.19**
O126	0.15	0.30	0.33	0.20	0.28	0.08	0.19	**0.23**
O127	0.20	0.34	0.33	0.33	0.39	0.14	0.32	**0.29**
O128	0.27	0.31	0.32	0.54	0.36	0.17	0.31	**0.32**
O129	0.28	0.26	0.43	0.40	0.28	0.17	0.21	**0.30**
O130	0.27	0.33	0.48	0.37	0.24	0.13	0.13	**0.30**
O131	0.03	0.04	0.36	0.28	0.14	0.06	0.12	**0.13**
O132	0.04	0.04	0.04	0.03	0.03	0.04	0.27	**0.05**
O133	0.35	0.17	0.23	0.04	0.06	0.35	0.03	**0.21**
O134	0.05	0.08	0.09	0.04	0.03	0.02	0.03	**0.06**
O135	0.14	0.22	0.20	0.12	0.09	0.53	0.13	**0.18**
O136	0.18	0.27	0.04	0.19	0.13	0.16	0.01	**0.16**
O137	0.02	0.09	0.41	0.27	0.37	0.03	0.17	**0.17**
O138	0.29	0.24	0.42	0.24	0.14	0.35	0.03	**0.27**
O139	0.30	0.20	0.39	0.14	0.26	0.48	0.11	**0.27**
O140	0.36	0.34	0.35	0.30	0.37	0.23	0.44	**0.35**
O141	0.45	0.11	0.05	0.06	0.06	0.39	0.26	**0.22**
O142	0.53	0.05	0.13	0.04	0.03	0.55	0.22	**0.25**
O143	0.11	0.27	0.49	0.15	0.19	0.14	0.17	**0.22**
O144	0.20	0.10	0.43	0.21	0.21	0.39	0.10	**0.22**
O145	0.14	0.09	0.37	0.25	0.21	0.31	0.13	**0.20**
O146	0.07	0.03	0.33	0.17	0.27	0.37	0.13	**0.16**
O147	0.44	0.08	0.38	0.19	0.26	0.46	0.14	**0.30**
O148	0.40	0.03	0.49	0.25	0.28	0.34	0.12	**0.29**
O149	0.37	0.12	0.47	0.21	0.26	0.51	0.10	**0.30**
O150	0.29	0.05	0.43	0.26	0.25	0.54	0.11	**0.26**
O151	0.48	0.11	0.23	0.22	0.31	0.25	0.26	**0.29**
O152	0.04	0.44	0.37	0.41	0.40	0.13	0.15	**0.26**
O153	0.32	0.25	0.20	0.22	0.29	0.11	0.17	**0.25**
O154	0.29	0.36	0.55	0.50	0.46	0.09	0.13	**0.36**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O155	0.37	0.25	0.09	0.25	0.19	0.14	0.32	**0.25**
O156	0.44	0.38	0.37	0.42	0.35	0.15	0.22	**0.37**
O157	0.36	0.16	0.16	0.15	0.15	0.11	0.34	**0.23**
O158	0.32	0.12	0.10	0.19	0.17	0.08	0.03	**0.18**
O159	0.02	0.04	0.04	0.07	0.09	0.07	0.22	**0.06**
O160	0.03	0.04	0.01	0.02	0.02	0.01	0.21	**0.04**
O161	0.36	0.22	0.16	0.28	0.20	0.14	0.14	**0.25**
O162	0.16	0.08	0.10	0.45	0.34	0.07	0.17	**0.18**
O163	0.28	0.03	0.34	0.40	0.27	0.12	0.26	**0.24**
O164	0.25	0.36	0.48	0.32	0.31	0.08	0.10	**0.30**
O165	0.16	0.36	0.54	0.40	0.38	0.05	0.37	**0.32**
O166	0.24	0.56	0.28	0.37	0.33	0.09	0.37	**0.33**
O167	0.28	0.35	0.19	0.26	0.26	0.16	0.25	**0.27**
O168	0.10	0.11	0.09	0.30	0.09	0.11	0.14	**0.12**
O169	0.10	0.06	0.14	0.18	0.14	0.09	0.24	**0.12**
O170	0.01	0.05	0.18	0.07	0.05	0.10	0.35	**0.08**
O171	0.01	0.04	0.12	0.01	0.05	0.04	0.21	**0.05**
O172	0.09	0.04	0.08	0.12	0.06	0.04	0.06	**0.07**
O173	0.15	0.14	0.11	0.14	0.02	0.01	0.04	**0.11**
O174	0.35	0.29	0.10	0.20	0.21	0.08	0.12	**0.24**
O175	0.24	0.12	0.16	0.19	0.17	0.03	0.05	**0.17**
O176	0.15	0.07	0.09	0.04	0.09	0.06	0.08	**0.10**
O177	0.13	0.08	0.04	0.10	0.07	0.04	0.04	**0.08**
O178	0.13	0.09	0.08	0.06	0.01	0.05	0.35	**0.10**
O179	0.27	0.27	0.07	0.20	0.05	0.14	0.44	**0.21**
O180	0.20	0.17	0.09	0.08	0.04	0.05	0.40	**0.15**
O181	0.10	0.04	0.36	0.50	0.36	0.05	0.26	**0.21**
O182	0.03	0.04	0.17	0.27	0.15	0.12	0.11	**0.11**
O183	0.02	0.08	0.14	0.17	0.12	0.05	0.08	**0.08**
O184	0.07	0.21	0.15	0.03	0.14	0.05	0.15	**0.12**
O185	0.08	0.16	0.28	0.15	0.12	0.06	0.33	**0.16**
O186	0.10	0.07	0.09	0.03	0.11	0.08	0.06	**0.08**
O187	0.01	0.09	0.09	0.08	0.09	0.01	0.09	**0.06**
O188	0.01	0.09	0.03	0.05	0.06	0.02	0.12	**0.05**
O189	0.31	0.28	0.26	0.41	0.26	0.25	0.20	**0.29**
O190	0.16	0.14	0.12	0.19	0.19	0.20	0.40	**0.18**
O191	0.44	0.50	0.22	0.52	0.37	0.15	0.41	**0.40**
O192	0.20	0.21	0.31	0.48	0.33	0.12	0.24	**0.26**
O193	0.18	0.19	0.29	0.50	0.34	0.11	0.21	**0.25**
O194	0.09	0.08	0.23	0.16	0.17	0.10	0.18	**0.13**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O195	0.09	0.14	0.18	0.23	0.11	0.09	0.23	**0.14**
O196	0.18	0.21	0.13	0.21	0.08	0.11	0.34	**0.18**
S01	0.14	0.25	0.34	0.29	0.22	0.17	0.20	**0.22**
S02	0.30	0.34	0.32	0.18	0.12	0.19	0.37	**0.28**

Summer Wind Condition (Baseline Scheme)

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P01	0.23	0.04	0.21	0.45	0.16	0.09	0.13	0.27	**0.19**
P02	0.27	0.10	0.28	0.47	0.21	0.08	0.12	0.29	**0.23**
P03	0.40	0.05	0.42	0.43	0.32	0.04	0.08	0.27	**0.26**
P04	0.42	0.03	0.24	0.39	0.28	0.06	0.04	0.37	**0.24**
P05	0.15	0.10	0.14	0.10	0.14	0.12	0.09	0.04	**0.11**
P06	0.24	0.17	0.16	0.18	0.19	0.14	0.15	0.04	**0.17**
P07	0.24	0.16	0.13	0.20	0.13	0.12	0.14	0.03	**0.16**
P08	0.24	0.05	0.14	0.13	0.21	0.10	0.11	0.04	**0.13**
P09	0.29	0.28	0.17	0.11	0.12	0.14	0.11	0.20	**0.19**
P10	0.23	0.34	0.09	0.10	0.07	0.20	0.23	0.24	**0.20**
P11	0.28	0.36	0.19	0.09	0.21	0.26	0.25	0.20	**0.24**
P12	0.34	0.38	0.20	0.08	0.21	0.29	0.25	0.15	**0.25**
P13	0.31	0.29	0.21	0.13	0.18	0.19	0.20	0.08	**0.22**
P14	0.24	0.27	0.23	0.22	0.10	0.22	0.21	0.01	**0.20**
P15	0.16	0.36	0.26	0.19	0.11	0.28	0.27	0.05	**0.22**
P16	0.59	0.33	0.30	0.15	0.44	0.23	0.27	0.04	**0.32**
P17	0.61	0.29	0.26	0.26	0.41	0.35	0.29	0.09	**0.34**
P18	0.52	0.42	0.18	0.26	0.32	0.37	0.29	0.10	**0.34**
P19	0.39	0.19	0.16	0.16	0.19	0.39	0.28	0.07	**0.24**
P20	0.43	0.13	0.20	0.15	0.22	0.28	0.20	0.08	**0.23**
P21	0.45	0.15	0.24	0.12	0.27	0.22	0.15	0.10	**0.23**
P22	0.22	0.28	0.23	0.27	0.29	0.16	0.08	0.36	**0.24**
P23	0.14	0.18	0.12	0.21	0.15	0.19	0.12	0.12	**0.16**
P24	0.25	0.05	0.11	0.16	0.17	0.06	0.04	0.18	**0.13**
P25	0.28	0.08	0.30	0.07	0.31	0.08	0.05	0.11	**0.17**
P26	0.30	0.05	0.33	0.11	0.31	0.05	0.03	0.16	**0.18**
P27	0.24	0.22	0.36	0.19	0.30	0.06	0.04	0.20	**0.21**
P28	0.33	0.20	0.42	0.17	0.33	0.08	0.07	0.18	**0.24**
P29	0.34	0.05	0.42	0.04	0.26	0.10	0.10	0.24	**0.20**
P30	0.15	0.02	0.20	0.38	0.16	0.09	0.12	0.26	**0.16**
P31	0.47	0.50	0.27	0.20	0.31	0.39	0.45	0.05	**0.35**
P32	0.61	0.48	0.33	0.36	0.42	0.43	0.51	0.14	**0.43**
P33	0.57	0.49	0.02	0.33	0.34	0.39	0.49	0.15	**0.37**
P34	0.42	0.49	0.08	0.27	0.27	0.32	0.43	0.17	**0.32**
P35	0.25	0.50	0.07	0.28	0.15	0.31	0.44	0.20	**0.28**
P36	0.30	0.50	0.05	0.30	0.13	0.32	0.42	0.22	**0.29**
P37	0.30	0.45	0.04	0.31	0.11	0.45	0.48	0.23	**0.30**
P38	0.19	0.52	0.02	0.25	0.05	0.47	0.46	0.22	**0.27**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P39	0.38	0.62	0.02	0.38	0.15	0.59	0.56	0.28	**0.38**
P40	0.32	0.50	0.02	0.29	0.10	0.49	0.44	0.17	**0.30**
P41	0.30	0.44	0.03	0.26	0.07	0.44	0.45	0.12	**0.27**
P42	0.33	0.52	0.22	0.36	0.23	0.51	0.53	0.26	**0.37**
P43	0.09	0.34	0.02	0.10	0.03	0.36	0.63	0.08	**0.19**
P44	0.40	0.21	0.06	0.39	0.12	0.15	0.35	0.34	**0.26**
P45	0.59	0.45	0.03	0.53	0.21	0.30	0.22	0.46	**0.37**
P46	0.68	0.51	0.05	0.46	0.26	0.40	0.47	0.50	**0.43**
P47	0.64	0.48	0.13	0.30	0.27	0.41	0.53	0.43	**0.41**
P48	0.53	0.42	0.16	0.32	0.24	0.37	0.49	0.35	**0.37**
P49	0.33	0.37	0.15	0.34	0.19	0.34	0.47	0.28	**0.31**
P50	0.32	0.23	0.21	0.37	0.20	0.26	0.39	0.28	**0.28**
P51	0.33	0.34	0.27	0.44	0.22	0.32	0.43	0.32	**0.33**
P52	0.33	0.35	0.29	0.43	0.22	0.36	0.44	0.30	**0.34**
P53	0.27	0.30	0.29	0.35	0.22	0.35	0.43	0.25	**0.30**
P54	0.21	0.33	0.23	0.29	0.20	0.39	0.45	0.22	**0.28**
P55	0.20	0.03	0.20	0.13	0.16	0.04	0.05	0.11	**0.12**
P56	0.35	0.13	0.29	0.23	0.27	0.12	0.15	0.11	**0.22**
P57	0.51	0.20	0.29	0.49	0.25	0.01	0.04	0.28	**0.28**
P58	0.47	0.16	0.20	0.46	0.21	0.06	0.03	0.29	**0.25**
P59	0.31	0.20	0.11	0.36	0.16	0.06	0.01	0.37	**0.21**
P60	0.25	0.13	0.01	0.10	0.16	0.01	0.02	0.10	**0.11**
P61	0.27	0.15	0.01	0.13	0.18	0.03	0.02	0.12	**0.13**
P62	0.17	0.15	0.02	0.35	0.08	0.15	0.01	0.26	**0.15**
P63	0.37	0.10	0.03	0.36	0.16	0.18	0.02	0.29	**0.20**
P64	0.40	0.21	0.11	0.32	0.25	0.10	0.01	0.22	**0.22**
P65	0.30	0.02	0.18	0.19	0.24	0.04	0.02	0.22	**0.16**
P66	0.39	0.10	0.17	0.21	0.29	0.01	0.05	0.25	**0.20**
P67	0.38	0.22	0.22	0.21	0.24	0.07	0.11	0.24	**0.23**
P68	0.07	0.08	0.18	0.07	0.08	0.04	0.15	0.11	**0.09**
P69	0.14	0.06	0.24	0.04	0.11	0.11	0.13	0.02	**0.11**
P70	0.14	0.08	0.27	0.25	0.15	0.14	0.21	0.18	**0.17**
P71	0.12	0.09	0.22	0.21	0.09	0.15	0.23	0.05	**0.14**
P72	0.08	0.09	0.17	0.31	0.06	0.13	0.17	0.08	**0.13**
P73	0.14	0.01	0.03	0.30	0.04	0.02	0.06	0.37	**0.11**
P74	0.21	0.03	0.14	0.24	0.12	0.03	0.07	0.11	**0.12**
P75	0.31	0.06	0.17	0.30	0.16	0.03	0.09	0.19	**0.17**
P76	0.41	0.14	0.20	0.39	0.18	0.06	0.08	0.32	**0.24**
P77	0.47	0.09	0.23	0.40	0.21	0.06	0.06	0.27	**0.24**
P78	0.25	0.13	0.12	0.15	0.24	0.08	0.02	0.17	**0.16**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P79	0.26	0.22	0.12	0.13	0.31	0.02	0.03	0.14	**0.17**
P80	0.35	0.24	0.36	0.28	0.34	0.23	0.07	0.29	**0.28**
P81	0.39	0.17	0.35	0.20	0.30	0.08	0.09	0.26	**0.24**
P82	0.06	0.20	0.08	0.05	0.05	0.06	0.08	0.07	**0.09**
P83	0.10	0.06	0.29	0.09	0.08	0.12	0.08	0.15	**0.12**
P84	0.10	0.06	0.31	0.07	0.12	0.12	0.16	0.07	**0.12**
O01	0.37	0.53	0.29	0.37	0.14	0.40	0.57	0.40	**0.38**
O02	0.15	0.50	0.27	0.37	0.17	0.32	0.53	0.39	**0.33**
O03	0.22	0.39	0.15	0.43	0.16	0.36	0.49	0.34	**0.31**
O04	0.22	0.22	0.13	0.01	0.15	0.19	0.21	0.30	**0.18**
O05	0.20	0.22	0.13	0.10	0.04	0.20	0.24	0.27	**0.17**
O06	0.44	0.27	0.07	0.43	0.13	0.21	0.37	0.37	**0.29**
O07	0.50	0.34	0.18	0.42	0.16	0.30	0.44	0.30	**0.34**
O08	0.31	0.31	0.20	0.12	0.29	0.31	0.45	0.21	**0.27**
O09	0.28	0.29	0.17	0.25	0.24	0.30	0.46	0.30	**0.28**
O10	0.28	0.27	0.12	0.40	0.07	0.28	0.47	0.36	**0.27**
O11	0.13	0.29	0.07	0.05	0.06	0.26	0.50	0.33	**0.19**
O12	0.29	0.27	0.15	0.41	0.10	0.28	0.50	0.35	**0.29**
O13	0.31	0.30	0.23	0.14	0.29	0.30	0.49	0.20	**0.28**
O14	0.49	0.32	0.16	0.38	0.16	0.31	0.48	0.31	**0.33**
O15	0.64	0.45	0.04	0.49	0.26	0.37	0.45	0.39	**0.40**
O16	0.58	0.41	0.03	0.53	0.21	0.26	0.19	0.43	**0.35**
O17	0.45	0.31	0.21	0.30	0.18	0.32	0.47	0.30	**0.32**
O18	0.36	0.24	0.03	0.25	0.25	0.24	0.23	0.29	**0.24**
O19	0.21	0.07	0.05	0.22	0.23	0.03	0.02	0.28	**0.14**
O20	0.10	0.13	0.14	0.26	0.17	0.14	0.17	0.26	**0.16**
O21	0.08	0.06	0.02	0.11	0.01	0.09	0.05	0.09	**0.06**
O22	0.07	0.36	0.11	0.08	0.12	0.38	0.31	0.04	**0.18**
O23	0.11	0.41	0.16	0.15	0.12	0.42	0.28	0.12	**0.22**
O24	0.12	0.37	0.17	0.04	0.20	0.32	0.41	0.07	**0.21**
O25	0.08	0.39	0.08	0.19	0.15	0.52	0.30	0.13	**0.22**
O26	0.07	0.35	0.09	0.16	0.15	0.50	0.20	0.13	**0.20**
O27	0.01	0.15	0.05	0.02	0.04	0.19	0.04	0.01	**0.06**
O28	0.02	0.13	0.01	0.03	0.01	0.15	0.02	0.09	**0.06**
O29	0.06	0.05	0.15	0.16	0.13	0.09	0.07	0.05	**0.09**
O30	0.07	0.24	0.05	0.12	0.02	0.21	0.01	0.10	**0.11**
O31	0.13	0.23	0.07	0.15	0.05	0.25	0.24	0.17	**0.16**
O32	0.15	0.04	0.09	0.15	0.04	0.10	0.12	0.05	**0.09**
O33	0.54	0.33	0.41	0.47	0.15	0.32	0.29	0.24	**0.37**
O34	0.49	0.55	0.29	0.50	0.16	0.17	0.15	0.27	**0.36**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O35	0.35	0.54	0.16	0.34	0.18	0.18	0.16	0.38	**0.31**
O36	0.16	0.26	0.24	0.12	0.19	0.05	0.02	0.27	**0.17**
O37	0.26	0.25	0.37	0.07	0.13	0.05	0.04	0.16	**0.19**
O38	0.35	0.09	0.03	0.38	0.24	0.03	0.02	0.35	**0.19**
O39	0.53	0.23	0.32	0.48	0.23	0.06	0.01	0.43	**0.31**
O40	0.52	0.06	0.32	0.51	0.21	0.03	0.05	0.45	**0.28**
O41	0.13	0.43	0.01	0.14	0.09	0.33	0.07	0.13	**0.18**
O42	0.36	0.44	0.12	0.42	0.28	0.45	0.12	0.33	**0.33**
O43	0.05	0.22	0.05	0.05	0.05	0.28	0.02	0.01	**0.10**
O44	0.28	0.20	0.17	0.21	0.10	0.26	0.05	0.22	**0.20**
O45	0.31	0.40	0.18	0.23	0.32	0.28	0.06	0.28	**0.27**
O46	0.48	0.25	0.33	0.40	0.33	0.17	0.03	0.40	**0.32**
O47	0.27	0.40	0.31	0.29	0.20	0.21	0.02	0.19	**0.26**
O48	0.46	0.53	0.39	0.48	0.18	0.35	0.32	0.41	**0.41**
O49	0.42	0.28	0.29	0.49	0.22	0.23	0.19	0.48	**0.33**
O50	0.19	0.25	0.17	0.25	0.07	0.03	0.03	0.27	**0.17**
O51	0.26	0.12	0.20	0.24	0.16	0.05	0.06	0.17	**0.17**
O52	0.26	0.29	0.13	0.22	0.16	0.12	0.05	0.20	**0.20**
O53	0.34	0.16	0.29	0.22	0.21	0.07	0.09	0.14	**0.21**
O54	0.34	0.04	0.18	0.26	0.09	0.03	0.16	0.20	**0.17**
O55	0.13	0.07	0.09	0.13	0.11	0.03	0.03	0.21	**0.10**
O56	0.21	0.48	0.26	0.27	0.11	0.22	0.13	0.27	**0.26**
O57	0.03	0.21	0.18	0.03	0.05	0.17	0.21	0.34	**0.14**
O58	0.08	0.16	0.12	0.05	0.07	0.15	0.23	0.39	**0.14**
O59	0.09	0.26	0.18	0.17	0.02	0.16	0.23	0.26	**0.17**
O60	0.10	0.34	0.28	0.13	0.18	0.11	0.16	0.27	**0.20**
O61	0.23	0.12	0.23	0.17	0.14	0.10	0.10	0.23	**0.17**
O62	0.25	0.45	0.15	0.03	0.12	0.04	0.09	0.17	**0.19**
O63	0.49	0.06	0.20	0.14	0.24	0.02	0.15	0.14	**0.20**
O64	0.30	0.04	0.05	0.31	0.02	0.07	0.19	0.13	**0.14**
O65	0.42	0.10	0.08	0.29	0.20	0.13	0.22	0.14	**0.21**
O66	0.20	0.04	0.03	0.04	0.10	0.12	0.24	0.09	**0.11**
O67	0.39	0.25	0.30	0.29	0.32	0.09	0.11	0.09	**0.25**
O68	0.09	0.04	0.11	0.03	0.12	0.06	0.11	0.01	**0.07**
O69	0.01	0.16	0.06	0.06	0.02	0.03	0.01	0.07	**0.06**
O70	0.16	0.07	0.14	0.14	0.17	0.09	0.12	0.04	**0.12**
O71	0.17	0.06	0.06	0.03	0.09	0.06	0.06	0.37	**0.11**
O72	0.01	0.24	0.13	0.14	0.06	0.16	0.17	0.09	**0.12**
O73	0.14	0.26	0.09	0.14	0.19	0.11	0.26	0.19	**0.17**
O74	0.29	0.26	0.07	0.03	0.32	0.07	0.19	0.03	**0.17**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O75	0.37	0.29	0.12	0.03	0.20	0.05	0.26	0.04	**0.19**
O76	0.06	0.08	0.03	0.14	0.02	0.01	0.04	0.26	**0.07**
O77	0.19	0.15	0.09	0.08	0.08	0.07	0.13	0.05	**0.12**
O78	0.05	0.03	0.03	0.10	0.03	0.10	0.06	0.01	**0.05**
O79	0.03	0.04	0.20	0.01	0.09	0.06	0.04	0.01	**0.06**
O80	0.30	0.13	0.17	0.19	0.17	0.08	0.05	0.16	**0.17**
O81	0.20	0.06	0.08	0.14	0.03	0.09	0.08	0.30	**0.12**
O82	0.17	0.18	0.13	0.20	0.14	0.19	0.10	0.35	**0.18**
O83	0.16	0.14	0.14	0.28	0.08	0.15	0.15	0.32	**0.17**
O84	0.17	0.15	0.13	0.06	0.03	0.12	0.09	0.08	**0.11**
O85	0.31	0.22	0.17	0.31	0.18	0.14	0.06	0.33	**0.23**
O86	0.18	0.17	0.08	0.36	0.20	0.10	0.15	0.36	**0.20**
O87	0.28	0.15	0.06	0.38	0.10	0.08	0.21	0.38	**0.20**
O88	0.16	0.10	0.02	0.37	0.02	0.00	0.13	0.39	**0.15**
O89	0.23	0.08	0.17	0.12	0.11	0.08	0.10	0.06	**0.13**
O90	0.28	0.09	0.15	0.07	0.17	0.11	0.06	0.06	**0.14**
O91	0.22	0.10	0.20	0.09	0.21	0.10	0.10	0.07	**0.14**
O92	0.18	0.14	0.21	0.12	0.22	0.09	0.12	0.10	**0.15**
O93	0.15	0.16	0.25	0.07	0.22	0.09	0.15	0.04	**0.15**
O94	0.11	0.10	0.12	0.09	0.15	0.07	0.10	0.39	**0.13**
O95	0.16	0.15	0.28	0.31	0.16	0.16	0.23	0.28	**0.21**
O96	0.31	0.09	0.21	0.30	0.17	0.03	0.04	0.22	**0.18**
O97	0.46	0.14	0.24	0.37	0.20	0.05	0.07	0.28	**0.24**
O98	0.44	0.32	0.30	0.50	0.26	0.02	0.03	0.28	**0.30**
O99	0.51	0.41	0.15	0.37	0.34	0.02	0.01	0.27	**0.30**
O100	0.55	0.32	0.22	0.33	0.32	0.03	0.22	0.25	**0.31**
O101	0.54	0.05	0.29	0.41	0.37	0.06	0.29	0.33	**0.30**
O102	0.31	0.46	0.00	0.10	0.20	0.28	0.05	0.09	**0.21**
O103	0.33	0.45	0.05	0.26	0.18	0.46	0.27	0.23	**0.29**
O104	0.02	0.33	0.07	0.05	0.05	0.36	0.27	0.10	**0.15**
O105	0.42	0.40	0.24	0.43	0.20	0.39	0.39	0.38	**0.36**
O106	0.27	0.48	0.08	0.19	0.11	0.52	0.37	0.21	**0.29**
O107	0.05	0.25	0.10	0.13	0.04	0.23	0.06	0.11	**0.12**
O108	0.33	0.33	0.29	0.33	0.34	0.40	0.10	0.36	**0.32**
O109	0.43	0.10	0.34	0.20	0.32	0.13	0.22	0.28	**0.26**
O110	0.36	0.29	0.33	0.22	0.29	0.12	0.24	0.12	**0.26**
O111	0.34	0.19	0.33	0.13	0.28	0.10	0.27	0.10	**0.23**
O112	0.35	0.04	0.34	0.09	0.29	0.09	0.25	0.10	**0.20**
O113	0.36	0.15	0.34	0.21	0.32	0.08	0.28	0.13	**0.24**
O114	0.44	0.40	0.33	0.24	0.36	0.06	0.28	0.16	**0.31**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O115	0.44	0.22	0.32	0.20	0.33	0.09	0.26	0.20	**0.27**
O116	0.36	0.32	0.34	0.22	0.30	0.09	0.27	0.12	**0.27**
O117	0.07	0.17	0.09	0.02	0.05	0.37	0.41	0.30	**0.16**
O118	0.06	0.13	0.09	0.05	0.14	0.39	0.43	0.29	**0.17**
O119	0.23	0.39	0.08	0.09	0.20	0.39	0.38	0.23	**0.25**
O120	0.24	0.33	0.02	0.16	0.13	0.34	0.27	0.20	**0.22**
O121	0.14	0.16	0.04	0.24	0.10	0.14	0.19	0.12	**0.14**
O122	0.15	0.07	0.01	0.21	0.05	0.10	0.11	0.12	**0.11**
O123	0.28	0.09	0.21	0.36	0.25	0.12	0.15	0.21	**0.21**
O124	0.28	0.09	0.29	0.36	0.30	0.06	0.24	0.25	**0.23**
O125	0.20	0.07	0.24	0.30	0.22	0.09	0.24	0.29	**0.19**
O126	0.19	0.15	0.29	0.38	0.22	0.08	0.18	0.30	**0.22**
O127	0.32	0.20	0.27	0.41	0.08	0.14	0.22	0.37	**0.25**
O128	0.31	0.27	0.33	0.34	0.28	0.17	0.20	0.35	**0.29**
O129	0.21	0.28	0.26	0.28	0.16	0.17	0.18	0.28	**0.23**
O130	0.13	0.27	0.10	0.11	0.09	0.13	0.13	0.23	**0.15**
O131	0.12	0.03	0.28	0.16	0.01	0.06	0.10	0.14	**0.11**
O132	0.27	0.04	0.03	0.24	0.10	0.04	0.05	0.21	**0.13**
O133	0.03	0.35	0.18	0.05	0.06	0.35	0.12	0.02	**0.15**
O134	0.03	0.05	0.05	0.06	0.03	0.02	0.02	0.06	**0.04**
O135	0.13	0.14	0.21	0.11	0.02	0.53	0.13	0.13	**0.17**
O136	0.01	0.18	0.04	0.10	0.02	0.16	0.08	0.06	**0.08**
O137	0.17	0.02	0.24	0.27	0.30	0.03	0.03	0.07	**0.14**
O138	0.03	0.29	0.23	0.06	0.03	0.35	0.36	0.20	**0.18**
O139	0.11	0.30	0.07	0.10	0.11	0.48	0.44	0.18	**0.21**
O140	0.44	0.36	0.33	0.34	0.33	0.23	0.24	0.03	**0.31**
O141	0.26	0.45	0.10	0.26	0.26	0.39	0.14	0.03	**0.25**
O142	0.22	0.53	0.15	0.25	0.20	0.55	0.43	0.11	**0.31**
O143	0.17	0.11	0.21	0.11	0.11	0.14	0.21	0.01	**0.14**
O144	0.10	0.20	0.08	0.10	0.06	0.39	0.48	0.09	**0.17**
O145	0.13	0.14	0.10	0.10	0.19	0.31	0.51	0.12	**0.18**
O146	0.13	0.07	0.18	0.28	0.19	0.37	0.48	0.10	**0.20**
O147	0.14	0.44	0.16	0.30	0.18	0.46	0.40	0.16	**0.28**
O148	0.12	0.40	0.17	0.32	0.17	0.34	0.35	0.04	**0.24**
O149	0.10	0.37	0.07	0.09	0.07	0.51	0.43	0.11	**0.21**
O150	0.11	0.29	0.16	0.29	0.19	0.54	0.45	0.11	**0.25**
O151	0.26	0.48	0.14	0.19	0.10	0.25	0.33	0.19	**0.26**
O152	0.15	0.04	0.08	0.12	0.08	0.13	0.05	0.12	**0.10**
O153	0.17	0.32	0.09	0.09	0.08	0.11	0.28	0.04	**0.16**
O154	0.13	0.29	0.19	0.31	0.17	0.09	0.15	0.25	**0.20**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O155	0.32	0.37	0.06	0.30	0.08	0.14	0.17	0.23	**0.23**
O156	0.22	0.44	0.19	0.20	0.12	0.15	0.24	0.15	**0.23**
O157	0.34	0.36	0.03	0.36	0.06	0.11	0.09	0.34	**0.23**
O158	0.03	0.32	0.19	0.06	0.19	0.08	0.08	0.10	**0.14**
O159	0.22	0.02	0.09	0.48	0.09	0.07	0.03	0.38	**0.17**
O160	0.21	0.03	0.08	0.16	0.10	0.01	0.00	0.12	**0.10**
O161	0.14	0.36	0.24	0.40	0.24	0.14	0.10	0.20	**0.24**
O162	0.17	0.16	0.14	0.25	0.22	0.07	0.01	0.15	**0.16**
O163	0.26	0.28	0.13	0.38	0.13	0.12	0.02	0.28	**0.21**
O164	0.10	0.25	0.01	0.22	0.07	0.08	0.19	0.20	**0.14**
O165	0.37	0.16	0.25	0.16	0.29	0.05	0.12	0.20	**0.21**
O166	0.37	0.24	0.19	0.09	0.27	0.09	0.04	0.12	**0.20**
O167	0.25	0.28	0.14	0.18	0.06	0.16	0.07	0.29	**0.19**
O168	0.14	0.10	0.04	0.12	0.17	0.11	0.15	0.07	**0.11**
O169	0.24	0.10	0.06	0.16	0.17	0.09	0.11	0.16	**0.14**
O170	0.35	0.01	0.05	0.29	0.02	0.10	0.16	0.13	**0.15**
O171	0.21	0.01	0.02	0.24	0.02	0.04	0.09	0.11	**0.10**
O172	0.06	0.09	0.10	0.22	0.05	0.04	0.18	0.09	**0.10**
O173	0.04	0.15	0.15	0.23	0.04	0.01	0.20	0.17	**0.12**
O174	0.12	0.35	0.09	0.02	0.08	0.08	0.12	0.11	**0.14**
O175	0.05	0.24	0.02	0.33	0.06	0.03	0.04	0.12	**0.12**
O176	0.08	0.15	0.09	0.05	0.10	0.06	0.07	0.06	**0.09**
O177	0.04	0.13	0.14	0.01	0.06	0.04	0.17	0.07	**0.08**
O178	0.35	0.13	0.24	0.25	0.16	0.05	0.12	0.18	**0.20**
O179	0.44	0.27	0.05	0.33	0.30	0.14	0.16	0.13	**0.25**
O180	0.40	0.20	0.01	0.23	0.11	0.05	0.23	0.17	**0.19**
O181	0.26	0.10	0.17	0.06	0.18	0.05	0.06	0.25	**0.15**
O182	0.11	0.03	0.03	0.13	0.06	0.12	0.07	0.16	**0.08**
O183	0.08	0.02	0.16	0.05	0.04	0.05	0.08	0.06	**0.07**
O184	0.15	0.07	0.18	0.16	0.14	0.05	0.06	0.09	**0.12**
O185	0.33	0.08	0.20	0.14	0.28	0.06	0.06	0.15	**0.17**
O186	0.06	0.10	0.17	0.04	0.12	0.08	0.07	0.03	**0.08**
O187	0.09	0.01	0.10	0.08	0.10	0.01	0.02	0.03	**0.06**
O188	0.12	0.01	0.06	0.10	0.04	0.02	0.03	0.09	**0.06**
O189	0.20	0.31	0.25	0.20	0.11	0.25	0.24	0.03	**0.21**
O190	0.40	0.16	0.23	0.20	0.28	0.20	0.17	0.10	**0.23**
O191	0.41	0.44	0.08	0.23	0.27	0.15	0.03	0.18	**0.26**
O192	0.24	0.20	0.13	0.34	0.19	0.12	0.11	0.35	**0.21**
O193	0.21	0.18	0.11	0.35	0.20	0.11	0.13	0.35	**0.20**
O194	0.18	0.09	0.10	0.12	0.14	0.10	0.12	0.06	**0.12**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O195	0.23	0.09	0.12	0.13	0.22	0.09	0.10	0.11	**0.14**
O196	0.34	0.18	0.08	0.23	0.26	0.11	0.13	0.12	**0.20**
S01	0.20	0.14	0.01	0.08	0.06	0.17	0.16	0.03	**0.11**
S02	0.37	0.30	0.15	0.44	0.18	0.19	0.21	0.26	**0.28**

Annual Wind Condition (Proposed Scheme)

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P01	0.17	0.20	0.41	0.47	0.39	0.11	0.35	**0.28**
P02	0.07	0.33	0.41	0.49	0.40	0.05	0.45	**0.28**
P03	0.26	0.37	0.42	0.50	0.41	0.17	0.55	**0.36**
P04	0.33	0.40	0.32	0.48	0.38	0.29	0.56	**0.38**
P05	0.40	0.47	0.07	0.49	0.34	0.37	0.17	**0.35**
P06	0.35	0.24	0.14	0.33	0.12	0.40	0.15	**0.26**
P07	0.30	0.18	0.32	0.06	0.13	0.37	0.03	**0.22**
P08	0.35	0.27	0.37	0.14	0.14	0.34	0.55	**0.30**
P09	0.43	0.29	0.37	0.21	0.14	0.27	0.30	**0.32**
P10	0.46	0.26	0.35	0.17	0.10	0.22	0.11	**0.30**
P11	0.52	0.26	0.31	0.14	0.05	0.23	0.14	**0.30**
P12	0.46	0.30	0.52	0.17	0.27	0.16	0.16	**0.35**
P13	0.39	0.38	0.51	0.26	0.31	0.17	0.27	**0.36**
P14	0.30	0.39	0.49	0.38	0.36	0.18	0.08	**0.34**
P15	0.22	0.38	0.41	0.39	0.37	0.10	0.07	**0.30**
P16	0.19	0.19	0.41	0.25	0.22	0.05	0.67	**0.26**
P17	0.31	0.39	0.49	0.36	0.38	0.31	0.68	**0.39**
P18	0.40	0.42	0.20	0.53	0.47	0.38	0.60	**0.41**
P19	0.13	0.27	0.03	0.37	0.03	0.41	0.34	**0.19**
P20	0.05	0.24	0.17	0.39	0.04	0.38	0.35	**0.19**
P21	0.13	0.12	0.58	0.12	0.39	0.30	0.41	**0.25**
P22	0.27	0.33	0.10	0.39	0.18	0.08	0.30	**0.25**
P23	0.20	0.31	0.07	0.29	0.07	0.21	0.10	**0.19**
P24	0.10	0.04	0.18	0.06	0.14	0.05	0.16	**0.10**
P25	0.13	0.06	0.18	0.09	0.14	0.07	0.27	**0.12**
P26	0.16	0.31	0.14	0.10	0.11	0.05	0.30	**0.18**
P27	0.12	0.12	0.43	0.48	0.38	0.07	0.27	**0.24**
P28	0.07	0.11	0.20	0.34	0.22	0.09	0.32	**0.16**
P29	0.03	0.08	0.40	0.07	0.10	0.12	0.36	**0.14**
P30	0.17	0.07	0.46	0.45	0.40	0.11	0.35	**0.26**
P31	0.18	0.45	0.56	0.48	0.41	0.09	0.46	**0.36**
P32	0.18	0.44	0.39	0.44	0.34	0.10	0.62	**0.33**
P33	0.12	0.45	0.27	0.42	0.30	0.13	0.63	**0.29**
P34	0.06	0.45	0.22	0.41	0.26	0.08	0.53	**0.25**
P35	0.05	0.46	0.14	0.41	0.22	0.09	0.41	**0.23**
P36	0.04	0.43	0.13	0.37	0.26	0.05	0.30	**0.21**
P37	0.18	0.38	0.27	0.30	0.24	0.20	0.25	**0.26**
P38	0.37	0.47	0.39	0.40	0.26	0.35	0.04	**0.36**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P39	0.57	0.56	0.13	0.46	0.28	0.54	0.21	**0.43**
P40	0.49	0.37	0.17	0.23	0.10	0.47	0.20	**0.33**
P41	0.42	0.20	0.37	0.07	0.13	0.42	0.19	**0.28**
P42	0.50	0.36	0.40	0.11	0.16	0.49	0.47	**0.37**
P43	0.32	0.05	0.78	0.41	0.57	0.36	0.14	**0.37**
P44	0.19	0.33	0.68	0.56	0.60	0.12	0.38	**0.39**
P45	0.45	0.50	0.12	0.51	0.31	0.30	0.54	**0.40**
P46	0.52	0.46	0.12	0.31	0.08	0.42	0.61	**0.37**
P47	0.47	0.39	0.04	0.28	0.29	0.42	0.57	**0.35**
P48	0.40	0.33	0.13	0.28	0.32	0.38	0.49	**0.33**
P49	0.39	0.31	0.17	0.30	0.32	0.36	0.53	**0.33**
P50	0.27	0.34	0.59	0.28	0.28	0.31	0.51	**0.35**
P51	0.21	0.17	0.09	0.24	0.24	0.25	0.56	**0.22**
P52	0.28	0.17	0.09	0.36	0.38	0.33	0.54	**0.27**
P53	0.28	0.15	0.08	0.38	0.39	0.33	0.43	**0.26**
P54	0.30	0.19	0.05	0.44	0.41	0.36	0.31	**0.27**
P55	0.01	0.01	0.08	0.05	0.04	0.03	0.32	**0.05**
P56	0.08	0.09	0.27	0.08	0.10	0.06	0.41	**0.13**
P57	0.29	0.44	0.38	0.54	0.34	0.03	0.09	**0.34**
P58	0.28	0.44	0.38	0.54	0.37	0.08	0.09	**0.34**
P59	0.24	0.37	0.28	0.45	0.32	0.08	0.14	**0.29**
P60	0.24	0.43	0.22	0.52	0.40	0.14	0.13	**0.31**
P61	0.14	0.37	0.13	0.41	0.33	0.09	0.10	**0.23**
P62	0.17	0.26	0.17	0.18	0.18	0.12	0.64	**0.21**
P63	0.23	0.33	0.16	0.41	0.29	0.14	0.56	**0.28**
P64	0.08	0.27	0.22	0.44	0.27	0.07	0.60	**0.23**
P65	0.16	0.27	0.32	0.52	0.21	0.05	0.57	**0.27**
P66	0.37	0.39	0.44	0.53	0.36	0.15	0.73	**0.41**
P67	0.34	0.28	0.21	0.16	0.27	0.07	0.22	**0.25**
P68	0.21	0.24	0.29	0.32	0.30	0.07	0.20	**0.24**
P69	0.02	0.02	0.05	0.08	0.04	0.01	0.23	**0.05**
P70	0.17	0.31	0.14	0.40	0.23	0.03	0.20	**0.22**
P71	0.04	0.04	0.07	0.09	0.04	0.02	0.10	**0.06**
P72	0.06	0.09	0.03	0.15	0.03	0.05	0.04	**0.07**
P73	0.13	0.02	0.15	0.17	0.10	0.01	0.01	**0.10**
P74	0.11	0.12	0.10	0.09	0.14	0.03	0.30	**0.12**
P75	0.07	0.04	0.11	0.07	0.07	0.00	0.12	**0.07**
P76	0.04	0.04	0.08	0.06	0.06	0.03	0.30	**0.07**
P77	0.01	0.06	0.12	0.15	0.08	0.03	0.35	**0.08**
P78	0.28	0.18	0.32	0.52	0.19	0.12	0.40	**0.28**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
P79	0.34	0.37	0.17	0.49	0.41	0.21	0.69	**0.36**
P80	0.23	0.31	0.30	0.27	0.36	0.21	0.22	**0.27**
P81	0.41	0.50	0.47	0.48	0.23	0.28	0.34	**0.41**
P82	0.42	0.52	0.49	0.48	0.23	0.25	0.61	**0.44**
P83	0.37	0.38	0.28	0.54	0.46	0.01	0.24	**0.36**
P84	0.04	0.04	0.08	0.08	0.03	0.04	0.23	**0.06**
O01	0.54	0.42	0.42	0.33	0.25	0.44	0.41	**0.43**
O02	0.48	0.40	0.43	0.39	0.23	0.33	0.17	**0.39**
O03	0.31	0.40	0.42	0.38	0.20	0.36	0.26	**0.34**
O04	0.31	0.24	0.42	0.40	0.21	0.19	0.32	**0.30**
O05	0.41	0.17	0.41	0.13	0.09	0.20	0.16	**0.27**
O06	0.23	0.28	0.61	0.45	0.48	0.17	0.40	**0.36**
O07	0.30	0.22	0.59	0.40	0.23	0.27	0.23	**0.33**
O08	0.29	0.26	0.57	0.33	0.22	0.29	0.52	**0.34**
O09	0.27	0.28	0.55	0.34	0.21	0.28	0.36	**0.32**
O10	0.25	0.18	0.49	0.07	0.16	0.27	0.16	**0.24**
O11	0.28	0.12	0.39	0.04	0.08	0.25	0.25	**0.21**
O12	0.25	0.19	0.52	0.11	0.18	0.27	0.24	**0.26**
O13	0.27	0.27	0.59	0.32	0.20	0.28	0.56	**0.34**
O14	0.29	0.27	0.54	0.39	0.22	0.27	0.13	**0.32**
O15	0.46	0.43	0.11	0.38	0.34	0.36	0.54	**0.38**
O16	0.40	0.46	0.10	0.54	0.52	0.24	0.51	**0.39**
O17	0.28	0.28	0.59	0.36	0.20	0.28	0.21	**0.33**
O18	0.22	0.20	0.43	0.33	0.17	0.24	0.33	**0.26**
O19	0.06	0.11	0.27	0.21	0.18	0.04	0.05	**0.13**
O20	0.14	0.06	0.30	0.38	0.29	0.15	0.08	**0.19**
O21	0.06	0.04	0.06	0.04	0.05	0.09	0.00	**0.05**
O22	0.36	0.31	0.46	0.33	0.27	0.37	0.06	**0.33**
O23	0.44	0.34	0.46	0.29	0.29	0.40	0.06	**0.36**
O24	0.37	0.24	0.54	0.37	0.36	0.29	0.23	**0.36**
O25	0.38	0.31	0.43	0.40	0.35	0.52	0.18	**0.37**
O26	0.34	0.31	0.48	0.39	0.36	0.49	0.20	**0.37**
O27	0.26	0.30	0.32	0.22	0.22	0.07	0.09	**0.25**
O28	0.14	0.17	0.26	0.15	0.19	0.15	0.08	**0.17**
O29	0.04	0.06	0.34	0.17	0.17	0.08	0.05	**0.12**
O30	0.24	0.44	0.32	0.27	0.22	0.21	0.06	**0.28**
O31	0.21	0.25	0.31	0.23	0.18	0.24	0.03	**0.22**
O32	0.05	0.30	0.18	0.28	0.05	0.12	0.09	**0.15**
O33	0.34	0.16	0.57	0.31	0.38	0.33	0.40	**0.34**
O34	0.55	0.57	0.30	0.61	0.46	0.16	0.41	**0.48**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O35	0.54	0.57	0.18	0.61	0.45	0.21	0.43	**0.46**
O36	0.30	0.33	0.43	0.47	0.45	0.09	0.36	**0.35**
O37	0.33	0.30	0.29	0.17	0.27	0.10	0.39	**0.28**
O38	0.09	0.21	0.21	0.21	0.22	0.02	0.60	**0.19**
O39	0.25	0.34	0.45	0.43	0.41	0.02	0.46	**0.34**
O40	0.09	0.20	0.37	0.33	0.35	0.05	0.47	**0.23**
O41	0.37	0.47	0.21	0.41	0.41	0.34	0.19	**0.36**
O42	0.41	0.36	0.24	0.22	0.09	0.46	0.59	**0.33**
O43	0.20	0.08	0.20	0.22	0.27	0.26	0.10	**0.18**
O44	0.18	0.12	0.18	0.07	0.09	0.23	0.19	**0.15**
O45	0.37	0.27	0.08	0.41	0.39	0.31	0.67	**0.33**
O46	0.28	0.43	0.47	0.41	0.28	0.16	0.58	**0.36**
O47	0.44	0.49	0.52	0.51	0.44	0.23	0.46	**0.46**
O48	0.58	0.46	0.17	0.32	0.26	0.36	0.49	**0.41**
O49	0.30	0.40	0.24	0.34	0.32	0.23	0.48	**0.32**
O50	0.23	0.20	0.02	0.13	0.10	0.03	0.24	**0.16**
O51	0.13	0.08	0.05	0.09	0.01	0.05	0.28	**0.09**
O52	0.27	0.24	0.16	0.24	0.24	0.11	0.34	**0.24**
O53	0.17	0.04	0.05	0.08	0.09	0.07	0.28	**0.11**
O54	0.05	0.06	0.17	0.01	0.04	0.05	0.45	**0.09**
O55	0.05	0.06	0.14	0.04	0.05	0.04	0.07	**0.07**
O56	0.49	0.55	0.09	0.57	0.38	0.22	0.36	**0.41**
O57	0.07	0.09	0.05	0.10	0.08	0.05	0.21	**0.08**
O58	0.06	0.16	0.02	0.31	0.20	0.03	0.27	**0.13**
O59	0.22	0.12	0.05	0.17	0.16	0.05	0.38	**0.16**
O60	0.48	0.44	0.39	0.36	0.39	0.23	0.42	**0.42**
O61	0.12	0.09	0.20	0.20	0.22	0.08	0.29	**0.16**
O62	0.44	0.52	0.08	0.48	0.04	0.04	0.18	**0.32**
O63	0.05	0.06	0.06	0.06	0.05	0.02	0.32	**0.07**
O64	0.05	0.10	0.14	0.05	0.05	0.06	0.44	**0.10**
O65	0.08	0.08	0.06	0.13	0.07	0.12	0.41	**0.10**
O66	0.21	0.20	0.20	0.13	0.10	0.08	0.14	**0.17**
O67	0.40	0.47	0.32	0.35	0.21	0.10	0.39	**0.35**
O68	0.05	0.13	0.07	0.02	0.03	0.07	0.17	**0.07**
O69	0.11	0.12	0.07	0.07	0.01	0.06	0.11	**0.09**
O70	0.14	0.08	0.06	0.05	0.05	0.07	0.09	**0.09**
O71	0.10	0.03	0.07	0.18	0.13	0.03	0.03	**0.09**
O72	0.16	0.15	0.07	0.25	0.15	0.05	0.23	**0.15**
O73	0.39	0.30	0.33	0.11	0.29	0.17	0.30	**0.30**
O74	0.35	0.40	0.13	0.38	0.17	0.07	0.18	**0.28**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O75	0.32	0.38	0.30	0.35	0.12	0.12	0.15	**0.29**
O76	0.02	0.05	0.09	0.02	0.04	0.01	0.09	**0.04**
O77	0.09	0.18	0.03	0.09	0.06	0.05	0.15	**0.10**
O78	0.03	0.03	0.07	0.01	0.02	0.06	0.04	**0.03**
O79	0.03	0.16	0.06	0.03	0.03	0.07	0.03	**0.06**
O80	0.20	0.16	0.17	0.08	0.10	0.03	0.25	**0.16**
O81	0.08	0.12	0.25	0.06	0.13	0.16	0.24	**0.13**
O82	0.25	0.04	0.22	0.06	0.16	0.15	0.13	**0.16**
O83	0.23	0.08	0.18	0.10	0.10	0.11	0.13	**0.15**
O84	0.13	0.20	0.09	0.11	0.05	0.09	0.14	**0.12**
O85	0.21	0.23	0.23	0.03	0.07	0.11	0.27	**0.18**
O86	0.18	0.28	0.25	0.12	0.16	0.07	0.10	**0.19**
O87	0.21	0.27	0.18	0.15	0.16	0.04	0.17	**0.19**
O88	0.09	0.17	0.10	0.12	0.05	0.03	0.07	**0.10**
O89	0.07	0.18	0.11	0.03	0.03	0.09	0.18	**0.10**
O90	0.09	0.22	0.07	0.04	0.03	0.11	0.19	**0.11**
O91	0.06	0.14	0.05	0.05	0.02	0.10	0.12	**0.08**
O92	0.14	0.17	0.06	0.12	0.08	0.08	0.18	**0.12**
O93	0.15	0.02	0.06	0.23	0.13	0.04	0.04	**0.10**
O94	0.07	0.05	0.13	0.23	0.13	0.01	0.01	**0.09**
O95	0.03	0.09	0.17	0.20	0.12	0.09	0.06	**0.10**
O96	0.12	0.10	0.13	0.10	0.13	0.03	0.40	**0.13**
O97	0.10	0.19	0.19	0.34	0.24	0.06	0.42	**0.19**
O98	0.46	0.54	0.32	0.67	0.34	0.16	0.52	**0.45**
O99	0.50	0.58	0.49	0.52	0.28	0.03	0.43	**0.46**
O100	0.48	0.57	0.31	0.49	0.41	0.01	0.48	**0.44**
O101	0.32	0.47	0.03	0.41	0.34	0.04	0.50	**0.31**
O102	0.44	0.49	0.06	0.51	0.49	0.37	0.04	**0.37**
O103	0.42	0.38	0.20	0.23	0.17	0.47	0.14	**0.32**
O104	0.29	0.25	0.03	0.19	0.13	0.34	0.16	**0.21**
O105	0.38	0.18	0.53	0.25	0.09	0.39	0.45	**0.32**
O106	0.46	0.36	0.31	0.25	0.11	0.53	0.15	**0.34**
O107	0.16	0.37	0.36	0.24	0.15	0.05	0.13	**0.23**
O108	0.35	0.18	0.34	0.30	0.14	0.41	0.66	**0.31**
O109	0.27	0.51	0.14	0.36	0.04	0.09	0.39	**0.28**
O110	0.25	0.22	0.38	0.36	0.05	0.08	0.30	**0.25**
O111	0.18	0.06	0.26	0.25	0.11	0.17	0.27	**0.18**
O112	0.06	0.06	0.15	0.13	0.16	0.21	0.26	**0.12**
O113	0.17	0.15	0.10	0.43	0.17	0.17	0.32	**0.20**
O114	0.26	0.41	0.18	0.49	0.21	0.10	0.39	**0.30**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O115	0.28	0.47	0.07	0.40	0.12	0.05	0.39	**0.27**
O116	0.22	0.23	0.07	0.41	0.12	0.11	0.32	**0.21**
O117	0.22	0.11	0.34	0.17	0.09	0.39	0.11	**0.20**
O118	0.26	0.15	0.35	0.05	0.21	0.41	0.17	**0.23**
O119	0.35	0.29	0.13	0.09	0.08	0.45	0.38	**0.25**
O120	0.36	0.41	0.28	0.32	0.26	0.46	0.05	**0.33**
O121	0.05	0.01	0.13	0.02	0.07	0.08	0.10	**0.06**
O122	0.06	0.13	0.14	0.12	0.24	0.09	0.17	**0.12**
O123	0.22	0.21	0.50	0.33	0.29	0.13	0.25	**0.28**
O124	0.25	0.21	0.50	0.14	0.34	0.15	0.29	**0.28**
O125	0.17	0.18	0.51	0.07	0.35	0.20	0.22	**0.24**
O126	0.14	0.16	0.40	0.10	0.37	0.12	0.24	**0.21**
O127	0.17	0.14	0.39	0.29	0.36	0.11	0.30	**0.24**
O128	0.18	0.11	0.32	0.51	0.40	0.14	0.33	**0.25**
O129	0.18	0.09	0.39	0.41	0.27	0.14	0.23	**0.23**
O130	0.18	0.05	0.47	0.35	0.27	0.11	0.16	**0.22**
O131	0.03	0.04	0.35	0.25	0.15	0.06	0.15	**0.13**
O132	0.04	0.06	0.06	0.04	0.04	0.04	0.02	**0.05**
O133	0.32	0.17	0.21	0.01	0.07	0.35	0.04	**0.20**
O134	0.13	0.08	0.15	0.09	0.09	0.06	0.02	**0.10**
O135	0.13	0.23	0.27	0.08	0.12	0.53	0.03	**0.18**
O136	0.28	0.33	0.14	0.28	0.09	0.20	0.03	**0.23**
O137	0.01	0.15	0.42	0.30	0.36	0.03	0.22	**0.19**
O138	0.29	0.20	0.45	0.21	0.19	0.29	0.17	**0.27**
O139	0.29	0.19	0.41	0.15	0.25	0.48	0.13	**0.27**
O140	0.29	0.25	0.48	0.23	0.39	0.28	0.50	**0.33**
O141	0.43	0.04	0.05	0.05	0.05	0.38	0.27	**0.20**
O142	0.52	0.03	0.09	0.09	0.09	0.53	0.31	**0.25**
O143	0.14	0.17	0.51	0.05	0.21	0.15	0.18	**0.20**
O144	0.19	0.10	0.44	0.24	0.23	0.38	0.12	**0.23**
O145	0.13	0.09	0.36	0.26	0.21	0.32	0.19	**0.20**
O146	0.19	0.04	0.33	0.21	0.28	0.48	0.17	**0.21**
O147	0.43	0.09	0.40	0.25	0.26	0.46	0.15	**0.30**
O148	0.40	0.03	0.47	0.25	0.29	0.36	0.15	**0.29**
O149	0.38	0.16	0.47	0.22	0.28	0.50	0.18	**0.32**
O150	0.25	0.06	0.39	0.28	0.24	0.54	0.16	**0.25**
O151	0.48	0.14	0.19	0.25	0.34	0.25	0.32	**0.30**
O152	0.03	0.40	0.32	0.38	0.38	0.15	0.47	**0.26**
O153	0.31	0.24	0.15	0.20	0.28	0.10	0.07	**0.23**
O154	0.31	0.35	0.54	0.54	0.48	0.09	0.20	**0.38**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O155	0.25	0.03	0.03	0.10	0.06	0.10	0.26	**0.13**
O156	0.46	0.42	0.44	0.43	0.38	0.15	0.31	**0.41**
O157	0.35	0.10	0.16	0.16	0.16	0.09	0.55	**0.23**
O158	0.44	0.09	0.06	0.11	0.09	0.09	0.15	**0.20**
O159	0.04	0.13	0.07	0.06	0.10	0.07	0.44	**0.10**
O160	0.02	0.02	0.02	0.02	0.02	0.01	0.10	**0.02**
O161	0.29	0.16	0.11	0.22	0.15	0.11	0.18	**0.19**
O162	0.23	0.09	0.11	0.48	0.35	0.09	0.24	**0.22**
O163	0.28	0.30	0.36	0.42	0.28	0.11	0.38	**0.31**
O164	0.30	0.38	0.47	0.33	0.31	0.09	0.24	**0.33**
O165	0.14	0.33	0.59	0.41	0.40	0.05	0.30	**0.31**
O166	0.25	0.54	0.30	0.38	0.35	0.09	0.38	**0.34**
O167	0.27	0.38	0.23	0.26	0.27	0.15	0.30	**0.28**
O168	0.12	0.13	0.05	0.27	0.10	0.12	0.10	**0.13**
O169	0.09	0.07	0.09	0.17	0.10	0.12	0.23	**0.11**
O170	0.02	0.04	0.12	0.03	0.04	0.08	0.44	**0.07**
O171	0.01	0.04	0.11	0.02	0.02	0.04	0.26	**0.05**
O172	0.07	0.04	0.08	0.12	0.02	0.02	0.07	**0.06**
O173	0.14	0.06	0.12	0.15	0.06	0.01	0.17	**0.11**
O174	0.35	0.32	0.12	0.25	0.21	0.09	0.16	**0.25**
O175	0.24	0.16	0.18	0.20	0.16	0.04	0.14	**0.18**
O176	0.16	0.09	0.10	0.06	0.08	0.06	0.03	**0.10**
O177	0.15	0.08	0.06	0.11	0.10	0.03	0.08	**0.10**
O178	0.14	0.09	0.13	0.09	0.02	0.07	0.33	**0.12**
O179	0.28	0.26	0.09	0.22	0.09	0.13	0.41	**0.22**
O180	0.17	0.16	0.09	0.11	0.01	0.05	0.42	**0.14**
O181	0.13	0.07	0.26	0.04	0.17	0.08	0.20	**0.13**
O182	0.15	0.07	0.20	0.09	0.08	0.12	0.10	**0.12**
O183	0.04	0.11	0.12	0.05	0.06	0.08	0.05	**0.07**
O184	0.07	0.06	0.11	0.04	0.09	0.04	0.15	**0.08**
O185	0.04	0.12	0.15	0.13	0.07	0.06	0.32	**0.11**
O186	0.10	0.12	0.09	0.14	0.10	0.09	0.02	**0.10**
O187	0.05	0.05	0.08	0.09	0.05	0.01	0.03	**0.05**
O188	0.05	0.05	0.03	0.02	0.05	0.03	0.09	**0.05**
O189	0.26	0.39	0.45	0.39	0.37	0.14	0.08	**0.32**
O190	0.16	0.20	0.28	0.20	0.21	0.17	0.50	**0.22**
O191	0.47	0.53	0.27	0.52	0.38	0.20	0.24	**0.42**
O192	0.20	0.25	0.24	0.07	0.11	0.09	0.19	**0.18**
O193	0.19	0.26	0.25	0.09	0.13	0.08	0.14	**0.19**
O194	0.10	0.15	0.08	0.15	0.07	0.10	0.14	**0.11**

	E	ENE	N	NE	NNE	ESE	SW	**VR**
	23.4%	15.1%	12.1%	8.8%	8.3%	4.9%	4.9%	**77.5%**
O195	0.08	0.13	0.10	0.20	0.08	0.09	0.21	**0.12**
O196	0.18	0.19	0.10	0.21	0.09	0.11	0.31	**0.17**
S01	0.31	0.23	0.33	0.21	0.20	0.16	0.04	**0.25**
S02	0.23	0.34	0.32	0.21	0.16	0.05	0.45	**0.26**

Summer Wind Condition (Proposed Scheme)

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P01	0.35	0.17	0.21	0.35	0.20	0.11	0.06	0.18	**0.22**
P02	0.45	0.07	0.32	0.36	0.31	0.05	0.05	0.21	**0.25**
P03	0.55	0.26	0.42	0.47	0.42	0.17	0.03	0.29	**0.36**
P04	0.56	0.33	0.15	0.58	0.22	0.29	0.03	0.49	**0.35**
P05	0.17	0.40	0.11	0.09	0.13	0.37	0.03	0.26	**0.21**
P06	0.15	0.35	0.12	0.24	0.17	0.40	0.13	0.11	**0.22**
P07	0.03	0.30	0.02	0.11	0.08	0.37	0.10	0.21	**0.15**
P08	0.55	0.35	0.33	0.29	0.38	0.34	0.13	0.19	**0.35**
P09	0.30	0.43	0.35	0.14	0.41	0.27	0.19	0.12	**0.29**
P10	0.11	0.46	0.17	0.09	0.07	0.22	0.16	0.10	**0.19**
P11	0.14	0.52	0.30	0.20	0.13	0.23	0.13	0.08	**0.24**
P12	0.16	0.46	0.27	0.15	0.07	0.16	0.19	0.00	**0.21**
P13	0.27	0.39	0.27	0.17	0.01	0.17	0.22	0.03	**0.22**
P14	0.08	0.30	0.26	0.20	0.15	0.18	0.20	0.04	**0.18**
P15	0.07	0.22	0.29	0.13	0.31	0.10	0.08	0.13	**0.17**
P16	0.67	0.19	0.41	0.33	0.52	0.05	0.11	0.07	**0.33**
P17	0.68	0.31	0.42	0.46	0.50	0.31	0.34	0.19	**0.42**
P18	0.60	0.40	0.37	0.44	0.44	0.38	0.37	0.18	**0.42**
P19	0.34	0.13	0.15	0.28	0.16	0.41	0.36	0.15	**0.24**
P20	0.35	0.05	0.14	0.09	0.10	0.38	0.30	0.22	**0.20**
P21	0.41	0.13	0.17	0.12	0.16	0.30	0.23	0.23	**0.22**
P22	0.30	0.27	0.26	0.54	0.29	0.08	0.09	0.56	**0.30**
P23	0.10	0.20	0.19	0.11	0.19	0.21	0.19	0.11	**0.16**
P24	0.16	0.10	0.07	0.34	0.10	0.05	0.05	0.31	**0.15**
P25	0.27	0.13	0.22	0.26	0.27	0.07	0.07	0.22	**0.19**
P26	0.30	0.16	0.26	0.17	0.27	0.05	0.04	0.19	**0.19**
P27	0.27	0.12	0.32	0.22	0.30	0.07	0.02	0.27	**0.21**
P28	0.32	0.07	0.42	0.12	0.38	0.09	0.03	0.20	**0.21**
P29	0.36	0.03	0.46	0.07	0.38	0.12	0.11	0.13	**0.22**
P30	0.35	0.17	0.19	0.14	0.21	0.11	0.07	0.15	**0.19**
P31	0.46	0.18	0.26	0.39	0.34	0.09	0.06	0.16	**0.27**
P32	0.62	0.18	0.31	0.51	0.39	0.10	0.32	0.24	**0.35**
P33	0.63	0.12	0.08	0.50	0.03	0.13	0.30	0.18	**0.27**
P34	0.53	0.06	0.12	0.41	0.12	0.08	0.15	0.15	**0.22**
P35	0.41	0.05	0.10	0.22	0.08	0.09	0.17	0.09	**0.17**
P36	0.30	0.04	0.08	0.26	0.10	0.05	0.31	0.11	**0.16**
P37	0.25	0.18	0.03	0.20	0.10	0.20	0.34	0.09	**0.18**
P38	0.04	0.37	0.01	0.13	0.02	0.35	0.37	0.06	**0.17**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P39	0.21	0.57	0.07	0.30	0.02	0.54	0.42	0.21	**0.30**
P40	0.20	0.49	0.07	0.23	0.03	0.47	0.30	0.14	**0.25**
P41	0.19	0.42	0.06	0.17	0.01	0.42	0.17	0.10	**0.20**
P42	0.47	0.50	0.24	0.38	0.24	0.49	0.50	0.34	**0.40**
P43	0.14	0.32	0.03	0.11	0.06	0.36	0.71	0.05	**0.21**
P44	0.38	0.19	0.15	0.35	0.22	0.12	0.40	0.36	**0.27**
P45	0.54	0.45	0.05	0.48	0.27	0.30	0.21	0.57	**0.37**
P46	0.61	0.52	0.11	0.52	0.30	0.42	0.49	0.58	**0.45**
P47	0.57	0.47	0.07	0.48	0.30	0.42	0.55	0.52	**0.43**
P48	0.49	0.40	0.05	0.43	0.27	0.38	0.51	0.42	**0.37**
P49	0.53	0.39	0.26	0.46	0.30	0.36	0.53	0.43	**0.41**
P50	0.51	0.27	0.28	0.42	0.30	0.31	0.50	0.38	**0.37**
P51	0.56	0.21	0.32	0.47	0.33	0.25	0.38	0.41	**0.37**
P52	0.54	0.28	0.31	0.46	0.32	0.33	0.46	0.41	**0.39**
P53	0.43	0.28	0.30	0.41	0.29	0.33	0.46	0.37	**0.36**
P54	0.31	0.30	0.28	0.32	0.26	0.36	0.48	0.32	**0.32**
P55	0.32	0.01	0.12	0.13	0.12	0.03	0.02	0.20	**0.13**
P56	0.41	0.08	0.29	0.25	0.26	0.06	0.20	0.29	**0.24**
P57	0.09	0.29	0.05	0.06	0.05	0.03	0.01	0.04	**0.09**
P58	0.09	0.28	0.04	0.16	0.04	0.08	0.00	0.07	**0.11**
P59	0.14	0.24	0.09	0.17	0.05	0.08	0.00	0.07	**0.12**
P60	0.13	0.24	0.05	0.13	0.07	0.14	0.00	0.09	**0.12**
P61	0.10	0.14	0.02	0.12	0.08	0.09	0.01	0.04	**0.08**
P62	0.64	0.17	0.20	0.46	0.27	0.12	0.06	0.28	**0.30**
P63	0.56	0.23	0.20	0.39	0.24	0.14	0.03	0.24	**0.28**
P64	0.60	0.08	0.22	0.46	0.27	0.07	0.01	0.27	**0.27**
P65	0.57	0.16	0.04	0.48	0.23	0.05	0.02	0.32	**0.26**
P66	0.73	0.37	0.38	0.50	0.45	0.15	0.13	0.36	**0.42**
P67	0.22	0.34	0.25	0.16	0.17	0.07	0.13	0.09	**0.20**
P68	0.20	0.21	0.27	0.29	0.14	0.07	0.14	0.26	**0.20**
P69	0.23	0.02	0.05	0.08	0.14	0.01	0.08	0.04	**0.09**
P70	0.20	0.17	0.05	0.24	0.06	0.03	0.18	0.27	**0.15**
P71	0.10	0.04	0.04	0.05	0.02	0.02	0.10	0.07	**0.06**
P72	0.04	0.06	0.15	0.20	0.01	0.05	0.18	0.07	**0.09**
P73	0.01	0.13	0.06	0.14	0.04	0.01	0.04	0.21	**0.08**
P74	0.30	0.11	0.25	0.03	0.19	0.03	0.03	0.22	**0.16**
P75	0.12	0.07	0.08	0.16	0.04	0.00	0.00	0.04	**0.07**
P76	0.30	0.04	0.19	0.30	0.15	0.03	0.01	0.13	**0.16**
P77	0.35	0.01	0.21	0.30	0.16	0.03	0.02	0.14	**0.17**
P78	0.40	0.28	0.17	0.33	0.16	0.12	0.06	0.24	**0.24**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
P79	0.69	0.34	0.29	0.56	0.47	0.21	0.06	0.25	**0.40**
P80	0.22	0.23	0.41	0.12	0.23	0.21	0.07	0.12	**0.21**
P81	0.34	0.41	0.33	0.25	0.25	0.28	0.10	0.14	**0.29**
P82	0.61	0.42	0.20	0.49	0.35	0.25	0.06	0.30	**0.37**
P83	0.24	0.37	0.25	0.15	0.09	0.01	0.09	0.08	**0.19**
P84	0.23	0.04	0.24	0.06	0.15	0.04	0.12	0.15	**0.13**
O01	0.41	0.54	0.21	0.39	0.12	0.44	0.60	0.41	**0.39**
O02	0.17	0.48	0.21	0.43	0.21	0.33	0.55	0.38	**0.33**
O03	0.26	0.31	0.26	0.44	0.24	0.36	0.53	0.34	**0.33**
O04	0.32	0.31	0.30	0.13	0.30	0.19	0.19	0.37	**0.27**
O05	0.16	0.41	0.23	0.06	0.23	0.20	0.24	0.10	**0.21**
O06	0.40	0.23	0.17	0.37	0.22	0.17	0.37	0.41	**0.29**
O07	0.23	0.30	0.25	0.25	0.30	0.27	0.42	0.38	**0.29**
O08	0.52	0.29	0.14	0.43	0.20	0.29	0.45	0.27	**0.33**
O09	0.36	0.27	0.07	0.40	0.06	0.28	0.47	0.31	**0.27**
O10	0.16	0.25	0.05	0.17	0.08	0.27	0.46	0.27	**0.20**
O11	0.25	0.28	0.04	0.15	0.05	0.25	0.49	0.06	**0.20**
O12	0.24	0.25	0.05	0.25	0.05	0.27	0.49	0.28	**0.23**
O13	0.56	0.27	0.18	0.44	0.23	0.28	0.50	0.30	**0.35**
O14	0.13	0.29	0.25	0.18	0.24	0.27	0.46	0.26	**0.25**
O15	0.54	0.46	0.07	0.45	0.27	0.36	0.45	0.55	**0.40**
O16	0.51	0.40	0.07	0.45	0.26	0.24	0.16	0.55	**0.35**
O17	0.21	0.28	0.25	0.12	0.36	0.28	0.45	0.23	**0.26**
O18	0.33	0.22	0.05	0.38	0.06	0.24	0.20	0.31	**0.23**
O19	0.05	0.06	0.03	0.30	0.04	0.04	0.03	0.28	**0.10**
O20	0.08	0.14	0.13	0.19	0.09	0.15	0.16	0.35	**0.15**
O21	0.00	0.06	0.01	0.08	0.02	0.09	0.03	0.13	**0.05**
O22	0.06	0.36	0.11	0.07	0.19	0.37	0.17	0.04	**0.17**
O23	0.06	0.44	0.15	0.12	0.16	0.40	0.04	0.19	**0.20**
O24	0.23	0.37	0.17	0.07	0.21	0.29	0.38	0.09	**0.23**
O25	0.18	0.38	0.09	0.16	0.19	0.52	0.30	0.21	**0.25**
O26	0.20	0.34	0.10	0.10	0.18	0.49	0.19	0.06	**0.21**
O27	0.09	0.26	0.06	0.02	0.06	0.07	0.03	0.05	**0.09**
O28	0.08	0.14	0.01	0.01	0.02	0.15	0.02	0.09	**0.07**
O29	0.05	0.04	0.14	0.14	0.16	0.08	0.08	0.11	**0.09**
O30	0.06	0.24	0.05	0.04	0.04	0.21	0.02	0.04	**0.10**
O31	0.03	0.21	0.06	0.11	0.07	0.24	0.23	0.13	**0.13**
O32	0.09	0.05	0.09	0.10	0.07	0.12	0.11	0.06	**0.08**
O33	0.40	0.34	0.41	0.41	0.26	0.33	0.30	0.21	**0.35**
O34	0.41	0.55	0.30	0.48	0.27	0.16	0.13	0.39	**0.36**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O35	0.43	0.54	0.17	0.41	0.27	0.21	0.16	0.38	**0.35**
O36	0.36	0.30	0.23	0.23	0.14	0.09	0.02	0.23	**0.23**
O37	0.39	0.33	0.35	0.18	0.11	0.10	0.04	0.10	**0.23**
O38	0.60	0.09	0.10	0.53	0.36	0.02	0.01	0.37	**0.28**
O39	0.46	0.25	0.31	0.49	0.35	0.02	0.01	0.42	**0.31**
O40	0.47	0.09	0.31	0.49	0.32	0.05	0.03	0.44	**0.28**
O41	0.19	0.37	0.01	0.15	0.09	0.34	0.04	0.15	**0.18**
O42	0.59	0.41	0.22	0.47	0.38	0.46	0.08	0.24	**0.39**
O43	0.10	0.20	0.08	0.06	0.05	0.26	0.01	0.09	**0.11**
O44	0.19	0.18	0.22	0.21	0.12	0.23	0.04	0.23	**0.18**
O45	0.67	0.37	0.24	0.54	0.43	0.31	0.05	0.30	**0.40**
O46	0.58	0.28	0.35	0.46	0.41	0.16	0.07	0.41	**0.36**
O47	0.46	0.44	0.31	0.42	0.36	0.23	0.03	0.33	**0.35**
O48	0.49	0.58	0.41	0.53	0.24	0.36	0.34	0.42	**0.44**
O49	0.48	0.30	0.30	0.50	0.29	0.23	0.18	0.43	**0.35**
O50	0.24	0.23	0.18	0.29	0.20	0.03	0.03	0.25	**0.20**
O51	0.28	0.13	0.25	0.25	0.10	0.05	0.05	0.10	**0.17**
O52	0.34	0.27	0.15	0.34	0.15	0.11	0.05	0.30	**0.23**
O53	0.28	0.17	0.30	0.14	0.13	0.07	0.06	0.07	**0.17**
O54	0.45	0.05	0.17	0.21	0.15	0.05	0.12	0.15	**0.18**
O55	0.07	0.05	0.11	0.14	0.12	0.04	0.03	0.17	**0.09**
O56	0.36	0.49	0.27	0.35	0.22	0.22	0.14	0.33	**0.32**
O57	0.21	0.07	0.13	0.20	0.10	0.05	0.20	0.36	**0.16**
O58	0.27	0.06	0.04	0.24	0.11	0.03	0.22	0.38	**0.16**
O59	0.38	0.22	0.12	0.26	0.14	0.05	0.21	0.36	**0.23**
O60	0.42	0.48	0.24	0.29	0.13	0.23	0.14	0.33	**0.31**
O61	0.29	0.12	0.22	0.27	0.17	0.08	0.08	0.31	**0.20**
O62	0.18	0.44	0.14	0.18	0.16	0.04	0.07	0.15	**0.19**
O63	0.32	0.05	0.17	0.08	0.23	0.02	0.12	0.09	**0.15**
O64	0.44	0.05	0.03	0.31	0.09	0.06	0.20	0.13	**0.18**
O65	0.41	0.08	0.06	0.35	0.31	0.12	0.23	0.15	**0.22**
O66	0.14	0.21	0.03	0.05	0.03	0.08	0.23	0.10	**0.11**
O67	0.39	0.40	0.31	0.21	0.29	0.10	0.12	0.10	**0.27**
O68	0.17	0.05	0.14	0.05	0.15	0.07	0.09	0.02	**0.10**
O69	0.11	0.11	0.08	0.06	0.05	0.06	0.06	0.08	**0.08**
O70	0.09	0.14	0.11	0.12	0.10	0.07	0.11	0.03	**0.10**
O71	0.03	0.10	0.07	0.09	0.08	0.03	0.07	0.40	**0.10**
O72	0.23	0.16	0.09	0.12	0.08	0.05	0.17	0.21	**0.14**
O73	0.30	0.39	0.04	0.22	0.15	0.17	0.24	0.21	**0.23**
O74	0.18	0.35	0.07	0.05	0.13	0.07	0.17	0.03	**0.15**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O75	0.15	0.32	0.09	0.06	0.08	0.12	0.24	0.07	**0.15**
O76	0.09	0.02	0.05	0.19	0.03	0.01	0.03	0.29	**0.08**
O77	0.15	0.09	0.09	0.06	0.05	0.05	0.12	0.08	**0.09**
O78	0.04	0.03	0.03	0.08	0.08	0.06	0.08	0.04	**0.05**
O79	0.03	0.03	0.16	0.03	0.04	0.07	0.04	0.06	**0.05**
O80	0.25	0.20	0.17	0.18	0.13	0.03	0.03	0.13	**0.16**
O81	0.24	0.08	0.10	0.16	0.05	0.16	0.11	0.34	**0.15**
O82	0.13	0.25	0.14	0.24	0.13	0.15	0.11	0.30	**0.18**
O83	0.13	0.23	0.13	0.30	0.08	0.11	0.17	0.35	**0.18**
O84	0.14	0.13	0.10	0.02	0.03	0.09	0.10	0.05	**0.09**
O85	0.27	0.21	0.16	0.29	0.17	0.11	0.06	0.36	**0.21**
O86	0.10	0.18	0.06	0.31	0.15	0.07	0.19	0.40	**0.17**
O87	0.17	0.21	0.05	0.34	0.07	0.04	0.22	0.41	**0.18**
O88	0.07	0.09	0.05	0.36	0.02	0.03	0.12	0.40	**0.13**
O89	0.18	0.07	0.16	0.07	0.07	0.09	0.10	0.08	**0.11**
O90	0.19	0.09	0.15	0.04	0.10	0.11	0.06	0.10	**0.11**
O91	0.12	0.06	0.19	0.07	0.16	0.10	0.09	0.10	**0.11**
O92	0.18	0.14	0.18	0.04	0.18	0.08	0.12	0.12	**0.13**
O93	0.04	0.15	0.22	0.06	0.18	0.04	0.14	0.03	**0.11**
O94	0.01	0.07	0.11	0.26	0.10	0.01	0.15	0.36	**0.12**
O95	0.06	0.03	0.23	0.20	0.09	0.09	0.24	0.25	**0.13**
O96	0.40	0.12	0.34	0.14	0.23	0.03	0.03	0.15	**0.20**
O97	0.42	0.10	0.33	0.31	0.22	0.06	0.01	0.16	**0.22**
O98	0.52	0.46	0.35	0.54	0.29	0.16	0.04	0.36	**0.38**
O99	0.43	0.50	0.12	0.18	0.29	0.03	0.01	0.33	**0.27**
O100	0.48	0.48	0.14	0.25	0.27	0.01	0.18	0.35	**0.30**
O101	0.50	0.32	0.25	0.36	0.30	0.04	0.28	0.24	**0.31**
O102	0.04	0.44	0.04	0.10	0.06	0.37	0.06	0.25	**0.17**
O103	0.14	0.42	0.07	0.09	0.05	0.47	0.16	0.07	**0.19**
O104	0.16	0.29	0.26	0.11	0.24	0.34	0.26	0.23	**0.23**
O105	0.45	0.38	0.17	0.40	0.13	0.39	0.37	0.35	**0.34**
O106	0.15	0.46	0.09	0.08	0.15	0.53	0.29	0.15	**0.24**
O107	0.13	0.16	0.05	0.10	0.02	0.05	0.10	0.10	**0.09**
O108	0.66	0.35	0.25	0.51	0.40	0.41	0.07	0.37	**0.40**
O109	0.39	0.27	0.32	0.14	0.30	0.09	0.25	0.20	**0.26**
O110	0.30	0.25	0.32	0.15	0.28	0.08	0.27	0.11	**0.23**
O111	0.27	0.18	0.31	0.08	0.26	0.17	0.28	0.11	**0.21**
O112	0.26	0.06	0.32	0.04	0.26	0.21	0.25	0.14	**0.19**
O113	0.32	0.17	0.31	0.11	0.30	0.17	0.28	0.20	**0.23**
O114	0.39	0.26	0.28	0.15	0.30	0.10	0.26	0.23	**0.26**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O115	0.39	0.28	0.29	0.14	0.29	0.05	0.28	0.15	**0.25**
O116	0.32	0.22	0.32	0.13	0.28	0.11	0.28	0.14	**0.23**
O117	0.11	0.22	0.11	0.05	0.05	0.39	0.45	0.12	**0.17**
O118	0.17	0.26	0.13	0.10	0.06	0.41	0.49	0.17	**0.21**
O119	0.38	0.35	0.18	0.10	0.02	0.45	0.48	0.15	**0.27**
O120	0.05	0.36	0.06	0.13	0.06	0.46	0.52	0.16	**0.21**
O121	0.10	0.05	0.10	0.20	0.14	0.08	0.10	0.11	**0.11**
O122	0.17	0.06	0.04	0.21	0.11	0.09	0.23	0.12	**0.12**
O123	0.25	0.22	0.27	0.30	0.25	0.13	0.14	0.17	**0.22**
O124	0.29	0.25	0.28	0.30	0.31	0.15	0.20	0.18	**0.25**
O125	0.22	0.17	0.26	0.30	0.25	0.20	0.26	0.24	**0.23**
O126	0.24	0.14	0.29	0.34	0.23	0.12	0.17	0.25	**0.22**
O127	0.30	0.17	0.28	0.37	0.13	0.11	0.24	0.33	**0.24**
O128	0.33	0.18	0.31	0.32	0.31	0.14	0.22	0.33	**0.27**
O129	0.23	0.18	0.25	0.24	0.18	0.14	0.18	0.26	**0.21**
O130	0.16	0.18	0.11	0.09	0.10	0.11	0.13	0.20	**0.14**
O131	0.15	0.03	0.30	0.15	0.14	0.06	0.11	0.09	**0.13**
O132	0.02	0.04	0.02	0.19	0.02	0.04	0.05	0.17	**0.06**
O133	0.04	0.32	0.20	0.02	0.04	0.35	0.13	0.00	**0.15**
O134	0.02	0.13	0.06	0.04	0.04	0.06	0.02	0.03	**0.05**
O135	0.03	0.13	0.20	0.13	0.08	0.53	0.13	0.17	**0.16**
O136	0.03	0.28	0.03	0.05	0.06	0.20	0.19	0.15	**0.12**
O137	0.22	0.01	0.24	0.32	0.30	0.03	0.03	0.05	**0.16**
O138	0.17	0.29	0.24	0.03	0.08	0.29	0.31	0.18	**0.20**
O139	0.13	0.29	0.07	0.13	0.11	0.48	0.44	0.21	**0.22**
O140	0.50	0.29	0.35	0.38	0.36	0.28	0.28	0.01	**0.33**
O141	0.27	0.43	0.10	0.29	0.26	0.38	0.11	0.01	**0.25**
O142	0.31	0.52	0.16	0.29	0.24	0.53	0.41	0.19	**0.34**
O143	0.18	0.14	0.19	0.14	0.20	0.15	0.23	0.09	**0.16**
O144	0.12	0.19	0.09	0.06	0.10	0.38	0.47	0.06	**0.17**
O145	0.19	0.13	0.13	0.24	0.21	0.32	0.50	0.11	**0.21**
O146	0.17	0.19	0.19	0.31	0.20	0.48	0.47	0.02	**0.24**
O147	0.15	0.43	0.18	0.33	0.19	0.46	0.39	0.22	**0.29**
O148	0.15	0.40	0.18	0.36	0.20	0.36	0.36	0.10	**0.27**
O149	0.18	0.38	0.07	0.11	0.14	0.50	0.43	0.11	**0.24**
O150	0.16	0.25	0.20	0.36	0.20	0.54	0.45	0.10	**0.27**
O151	0.32	0.48	0.17	0.16	0.02	0.25	0.34	0.17	**0.26**
O152	0.47	0.03	0.21	0.42	0.17	0.15	0.07	0.37	**0.25**
O153	0.07	0.31	0.10	0.08	0.07	0.10	0.29	0.03	**0.14**
O154	0.20	0.31	0.19	0.37	0.17	0.09	0.15	0.25	**0.22**

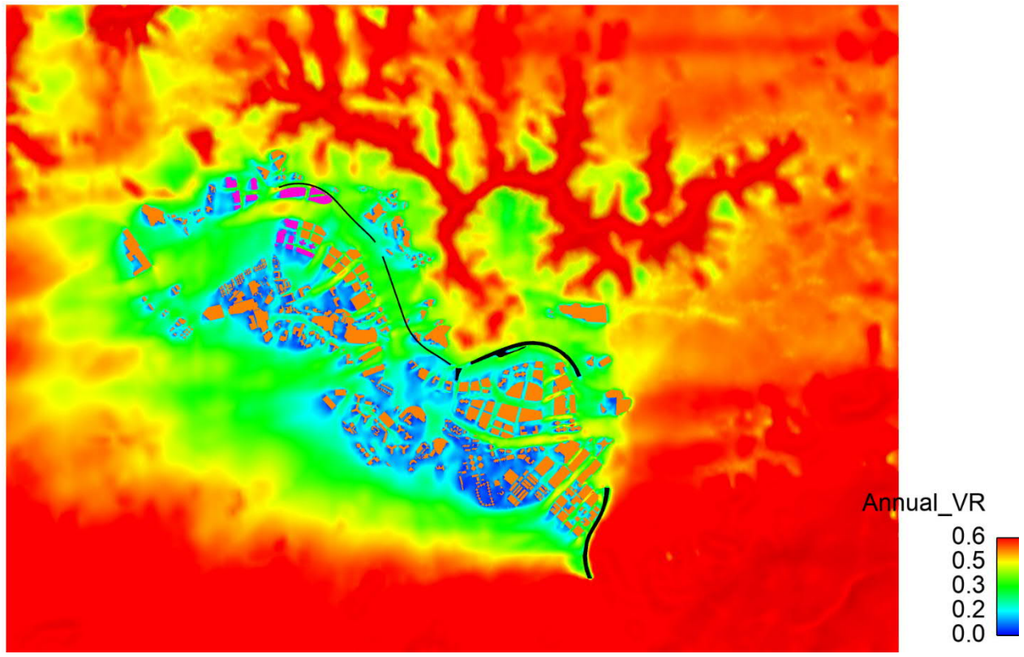
	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O155	0.26	0.25	0.08	0.18	0.06	0.10	0.13	0.14	**0.16**
O156	0.31	0.46	0.20	0.29	0.17	0.15	0.23	0.17	**0.27**
O157	0.55	0.35	0.06	0.29	0.07	0.09	0.07	0.30	**0.26**
O158	0.15	0.44	0.22	0.19	0.23	0.09	0.12	0.13	**0.21**
O159	0.44	0.04	0.15	0.46	0.14	0.07	0.04	0.38	**0.22**
O160	0.10	0.02	0.04	0.19	0.02	0.01	0.00	0.10	**0.06**
O161	0.18	0.29	0.25	0.47	0.23	0.11	0.09	0.12	**0.23**
O162	0.24	0.23	0.15	0.22	0.18	0.09	0.01	0.15	**0.18**
O163	0.38	0.28	0.14	0.37	0.14	0.11	0.02	0.27	**0.24**
O164	0.24	0.30	0.09	0.32	0.14	0.09	0.20	0.25	**0.21**
O165	0.30	0.14	0.21	0.16	0.22	0.05	0.13	0.17	**0.18**
O166	0.38	0.25	0.20	0.07	0.21	0.09	0.04	0.19	**0.20**
O167	0.30	0.27	0.15	0.22	0.04	0.15	0.06	0.31	**0.20**
O168	0.10	0.12	0.03	0.08	0.15	0.12	0.14	0.11	**0.10**
O169	0.23	0.09	0.06	0.20	0.21	0.12	0.11	0.20	**0.15**
O170	0.44	0.02	0.04	0.29	0.09	0.08	0.17	0.16	**0.17**
O171	0.26	0.01	0.01	0.20	0.04	0.04	0.09	0.11	**0.10**
O172	0.07	0.07	0.09	0.20	0.04	0.02	0.16	0.09	**0.09**
O173	0.17	0.14	0.15	0.21	0.03	0.01	0.20	0.15	**0.14**
O174	0.16	0.35	0.07	0.07	0.08	0.09	0.10	0.05	**0.14**
O175	0.14	0.24	0.03	0.32	0.06	0.04	0.05	0.14	**0.14**
O176	0.03	0.16	0.08	0.02	0.06	0.06	0.06	0.07	**0.07**
O177	0.08	0.15	0.12	0.03	0.06	0.03	0.17	0.08	**0.09**
O178	0.33	0.14	0.21	0.26	0.19	0.07	0.13	0.19	**0.20**
O179	0.41	0.28	0.02	0.32	0.31	0.13	0.16	0.16	**0.24**
O180	0.42	0.17	0.01	0.23	0.16	0.05	0.22	0.20	**0.20**
O181	0.20	0.13	0.17	0.08	0.15	0.08	0.07	0.25	**0.14**
O182	0.10	0.15	0.03	0.11	0.09	0.12	0.07	0.19	**0.11**
O183	0.05	0.04	0.15	0.04	0.02	0.08	0.08	0.05	**0.06**
O184	0.15	0.07	0.13	0.13	0.14	0.04	0.05	0.04	**0.10**
O185	0.32	0.04	0.19	0.10	0.24	0.06	0.06	0.14	**0.15**
O186	0.02	0.10	0.16	0.04	0.09	0.09	0.07	0.05	**0.08**
O187	0.03	0.05	0.12	0.05	0.09	0.01	0.01	0.02	**0.05**
O188	0.09	0.05	0.07	0.11	0.03	0.03	0.04	0.08	**0.06**
O189	0.08	0.26	0.28	0.16	0.23	0.14	0.14	0.08	**0.18**
O190	0.50	0.16	0.27	0.29	0.31	0.17	0.18	0.20	**0.28**
O191	0.24	0.47	0.08	0.14	0.18	0.20	0.03	0.29	**0.22**
O192	0.19	0.20	0.11	0.30	0.16	0.09	0.13	0.38	**0.19**
O193	0.14	0.19	0.08	0.30	0.16	0.08	0.16	0.39	**0.18**
O194	0.14	0.10	0.10	0.08	0.11	0.10	0.12	0.09	**0.11**

	SW	E	S	WSW	SSW	ESE	SE	W	**VR**
	14.5%	13.8%	10.1%	9.7%	8.3%	7.9%	6.5%	6.5%	**77.3%**
O195	0.21	0.08	0.11	0.09	0.20	0.09	0.10	0.12	**0.13**
O196	0.31	0.18	0.06	0.21	0.25	0.11	0.13	0.14	**0.19**
S01	0.04	0.31	0.00	0.08	0.06	0.16	0.05	0.06	**0.11**
S02	0.45	0.23	0.19	0.46	0.25	0.05	0.15	0.33	**0.28**

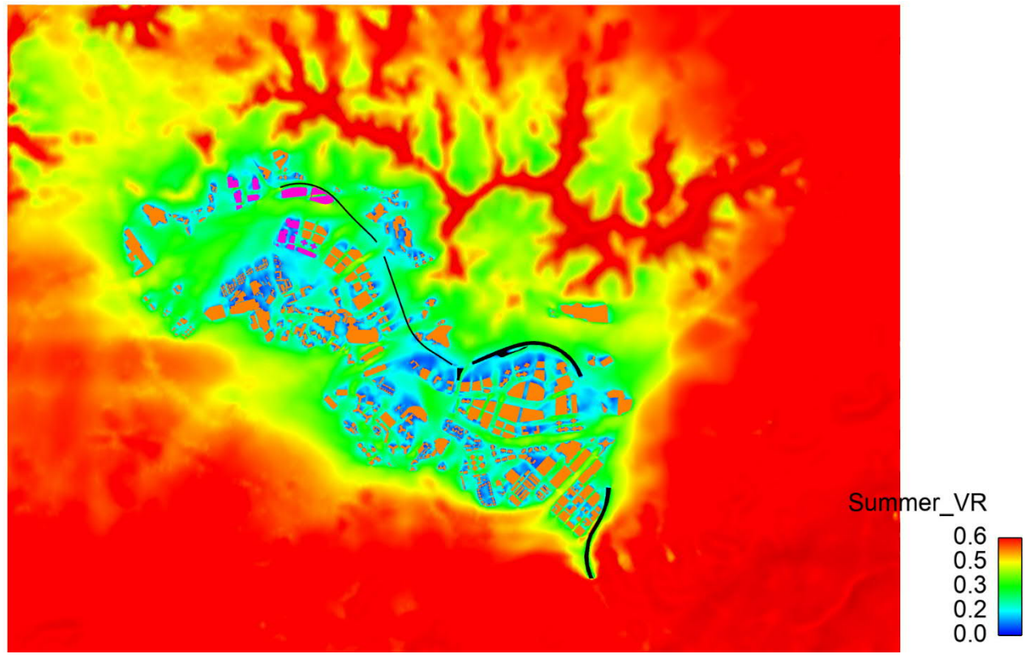
APPENDIX D

VR CONTOUR PLOT OF THE WHOLE SIMULATION DOMAIN

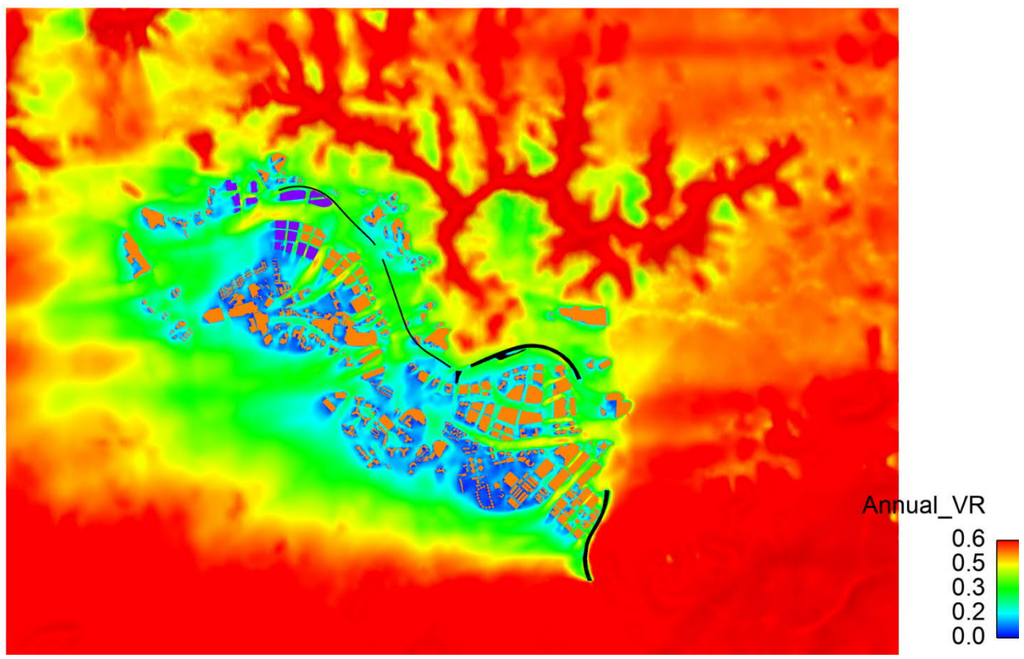
Annual Wind Condition (Baseline)



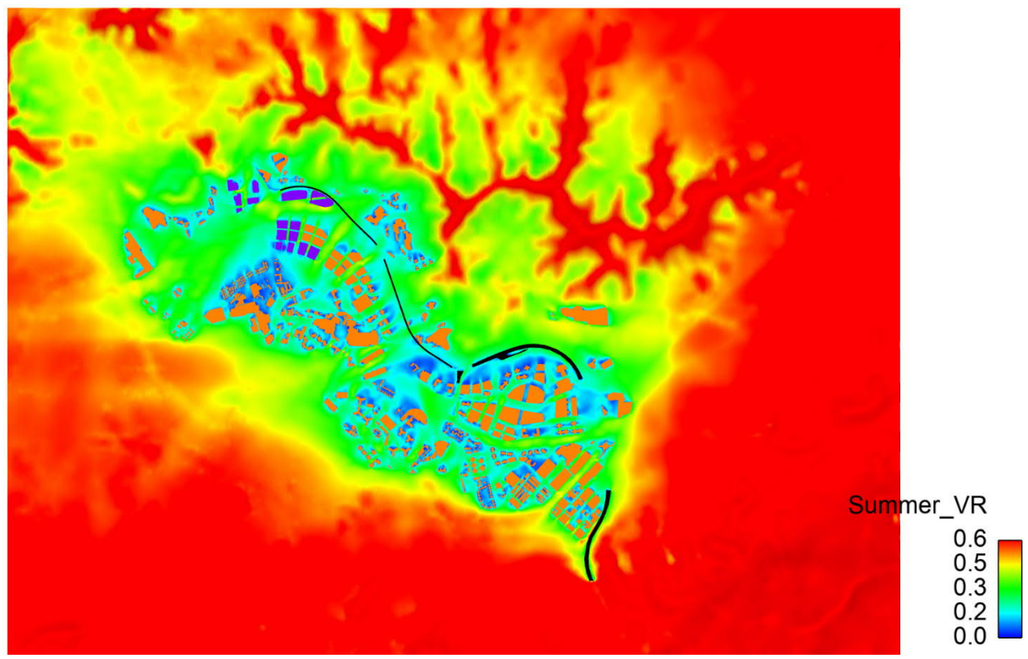
Summer Wind Condition (Baseline)



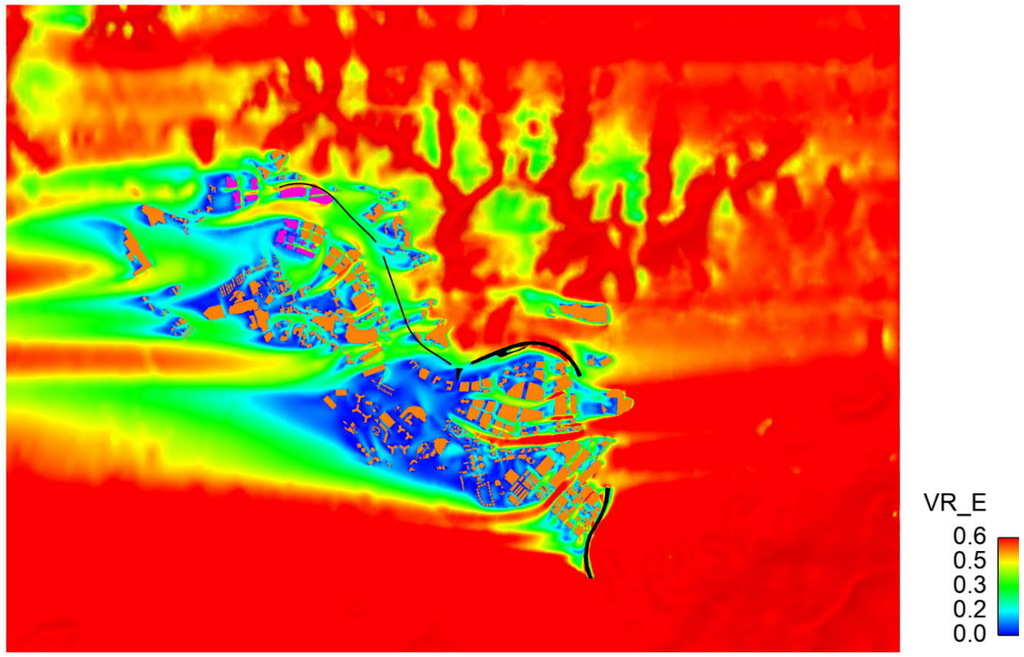
Annual Wind Condition (Proposed)



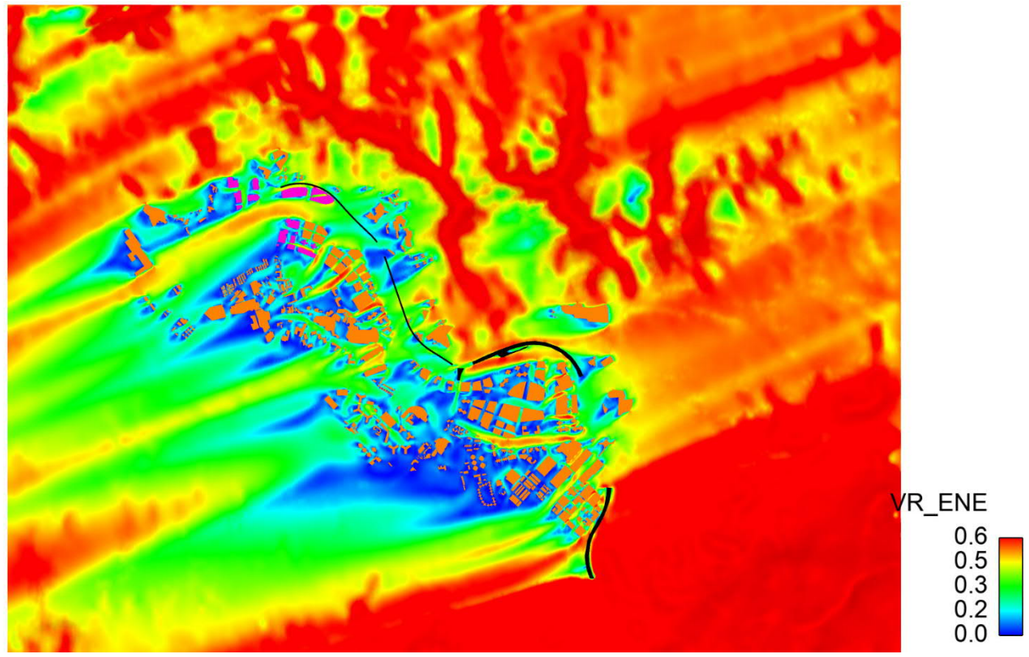
Summer Wind Condition (Proposed)



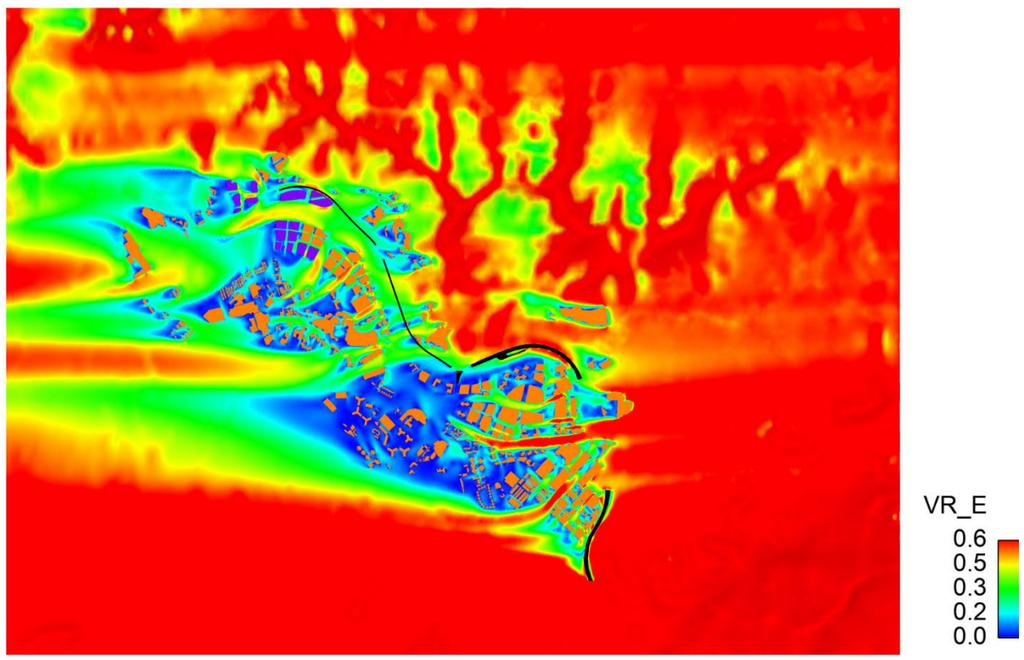
E Wind Condition (Baseline)



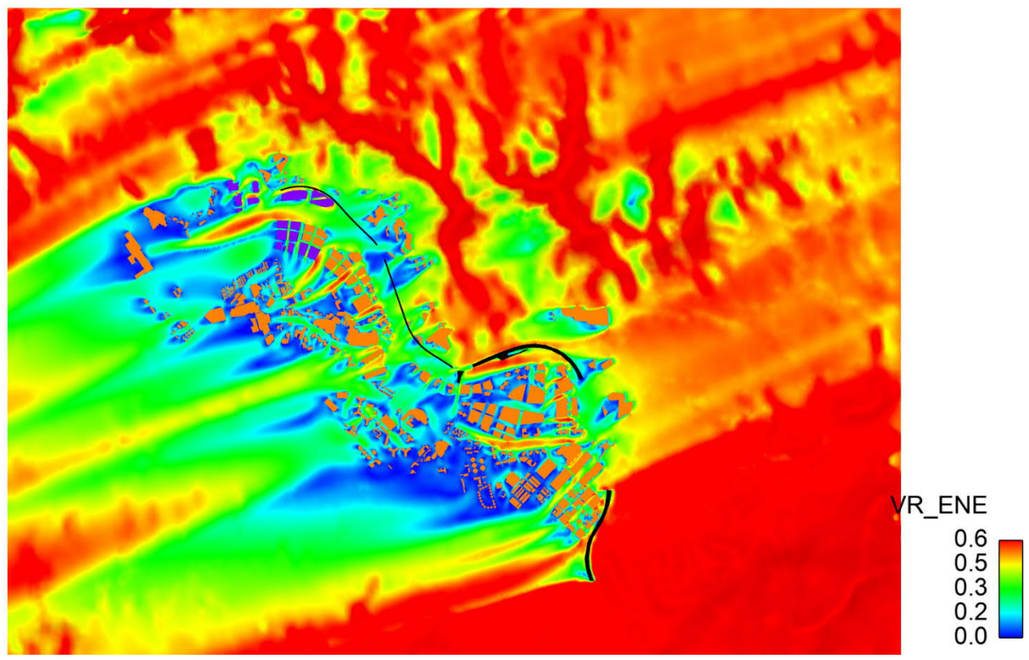
ENE Wind Condition (Baseline)



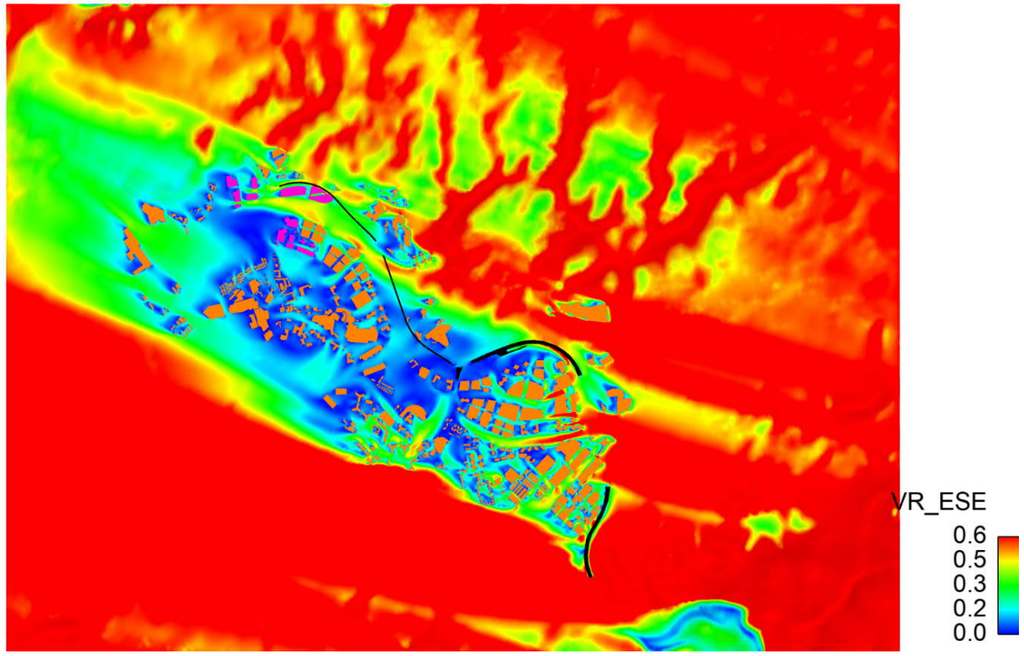
E Wind Condition (Proposed)



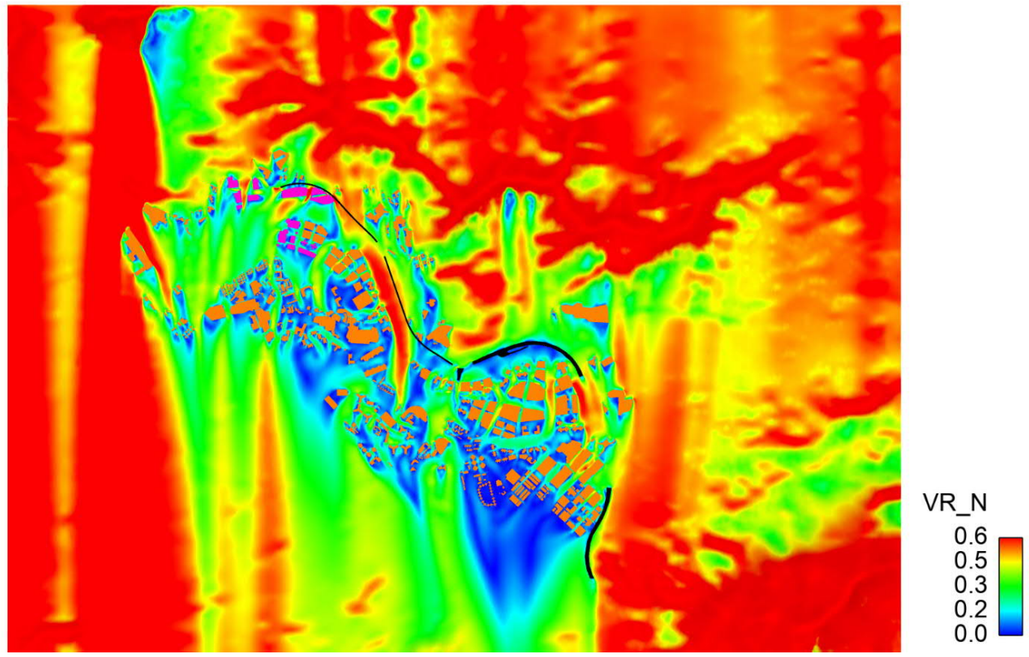
ENE Wind Condition (Proposed)



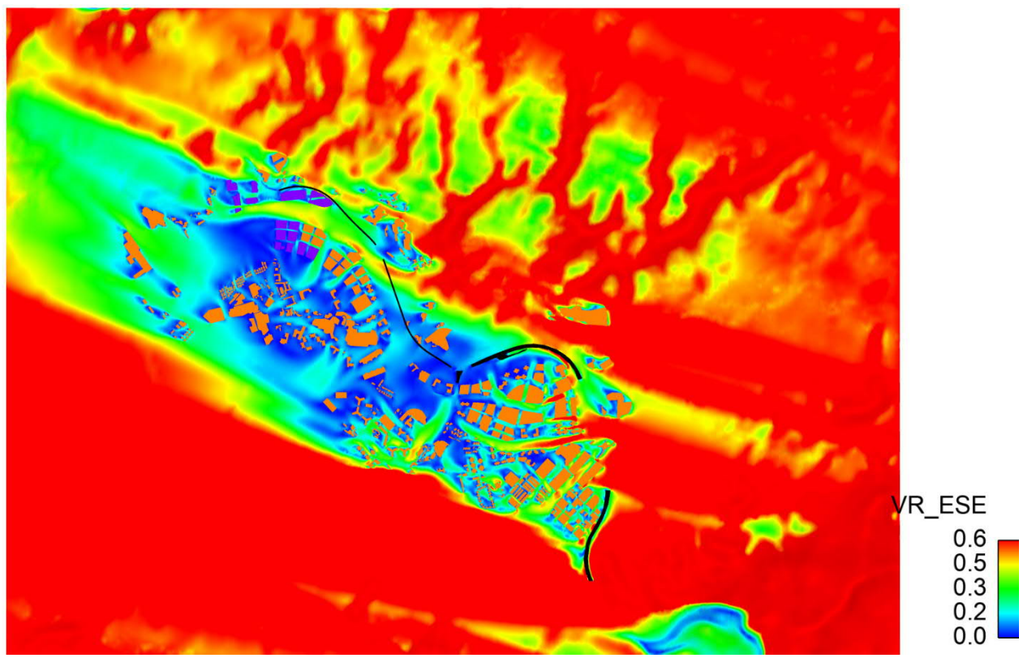
ESE Wind Condition (Baseline)



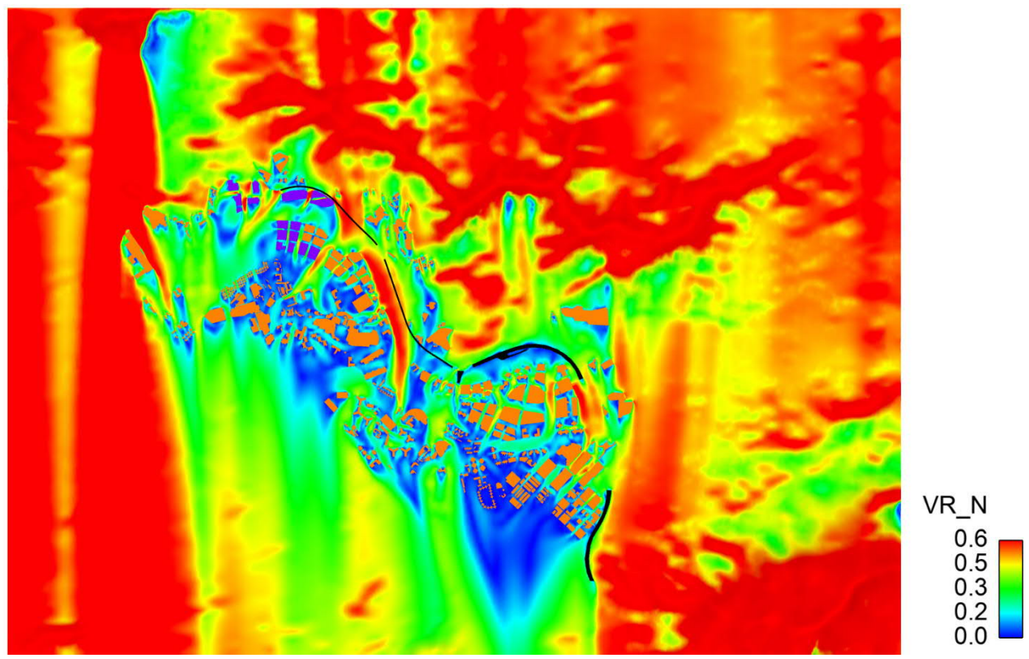
N Wind Condition (Baseline)



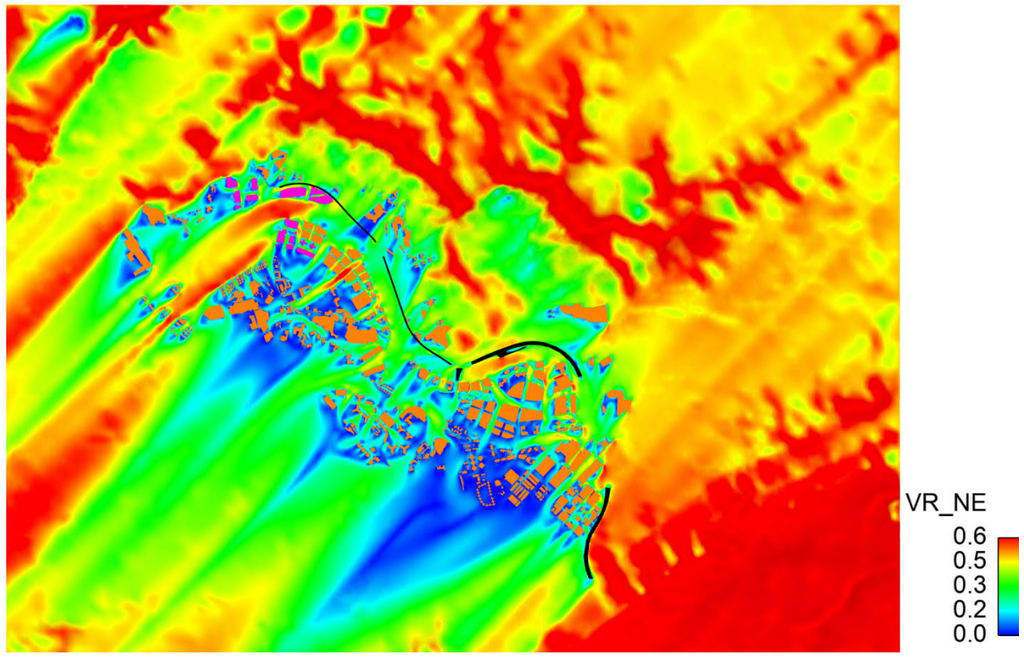
ESE Wind Condition (Proposed)



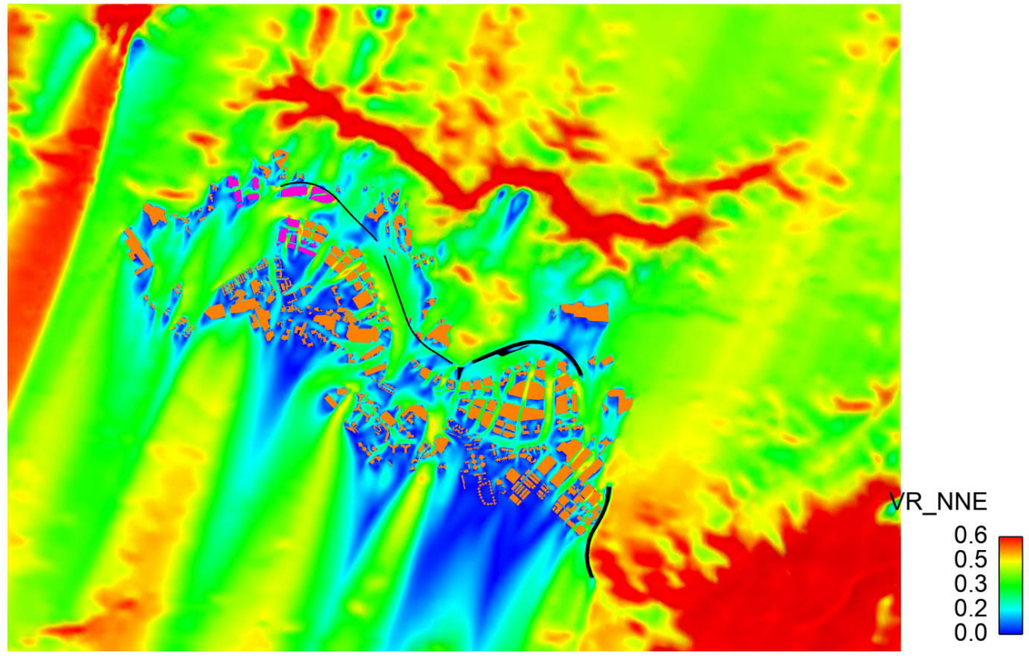
N Wind Condition (Proposed)



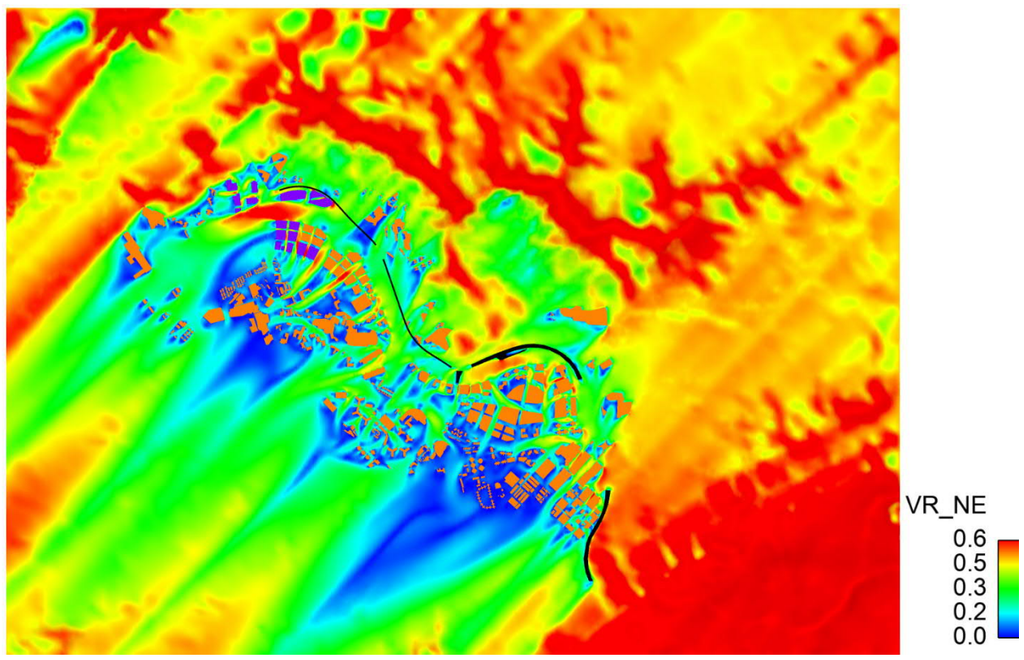
NE Wind Condition (Baseline)



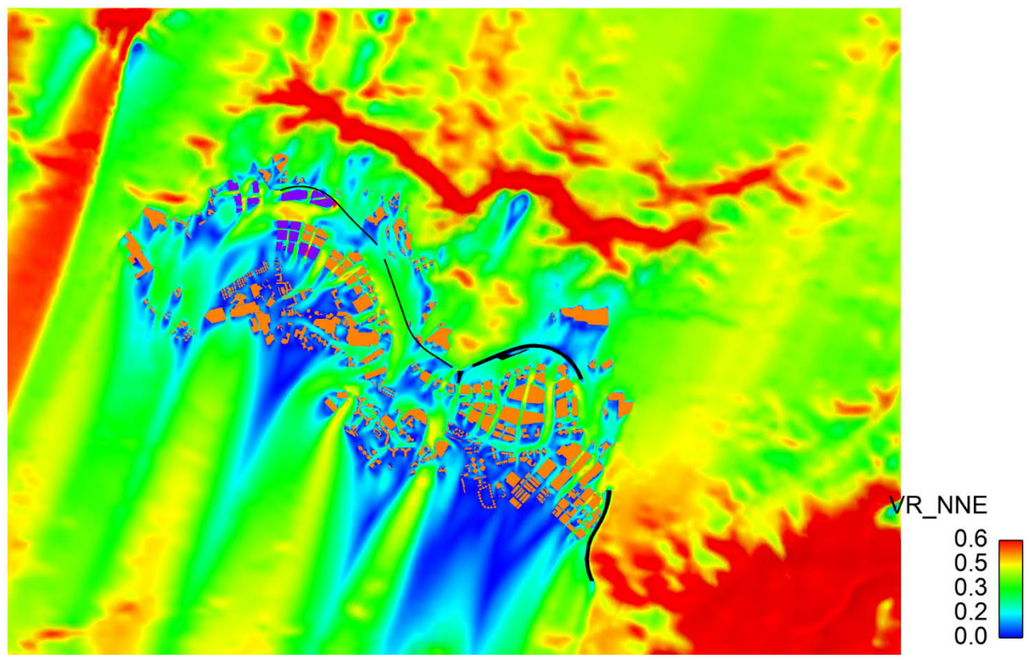
NNE Wind Condition (Baseline)



NE Wind Condition (Proposed)



NNE Wind Condition (Proposed)



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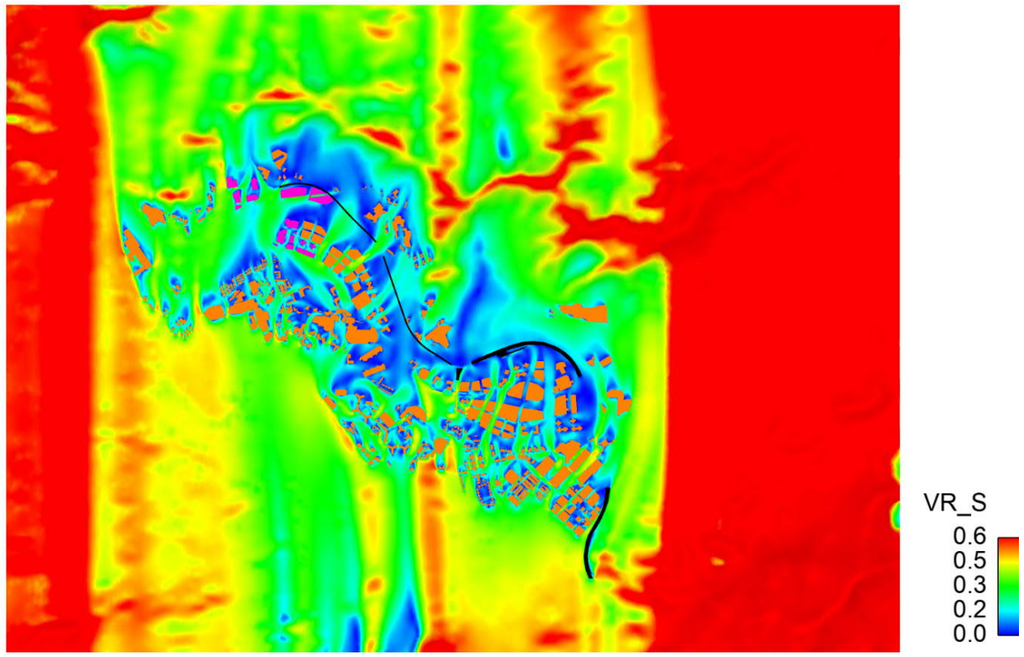

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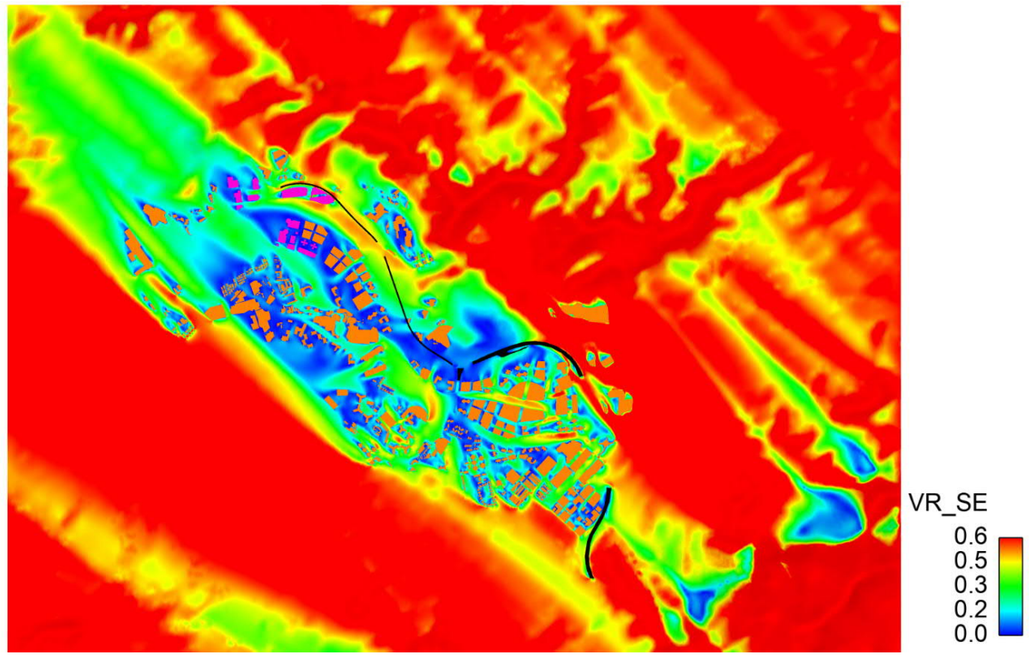

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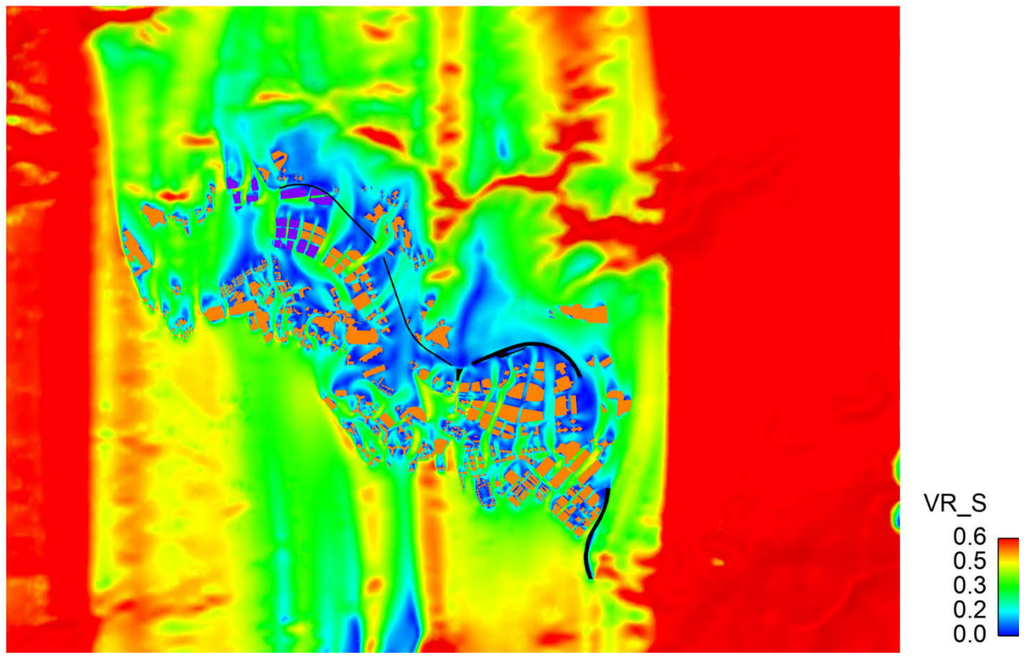

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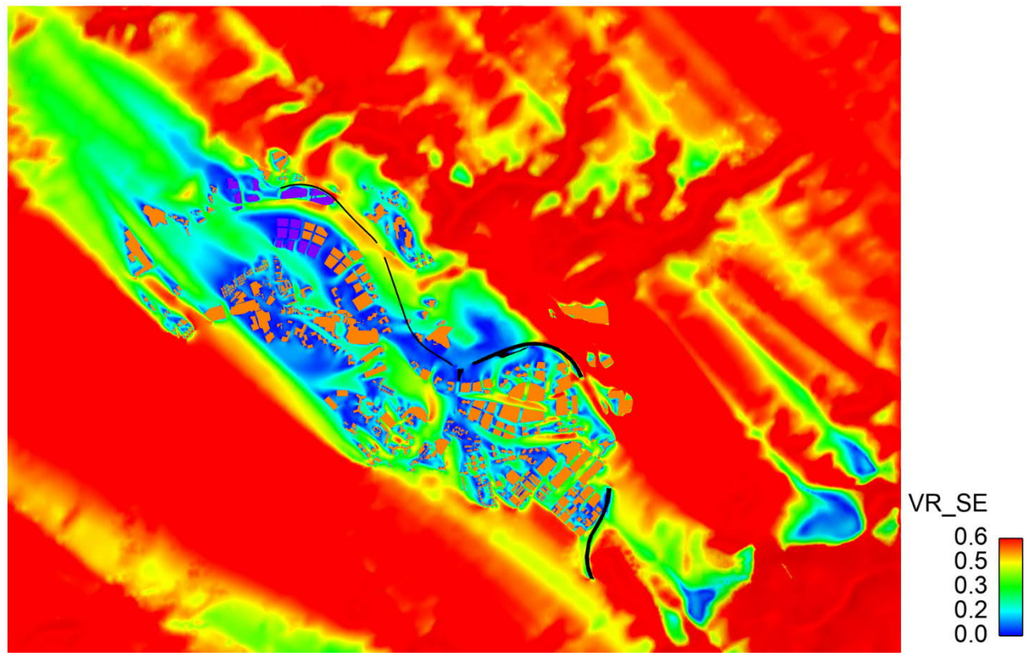

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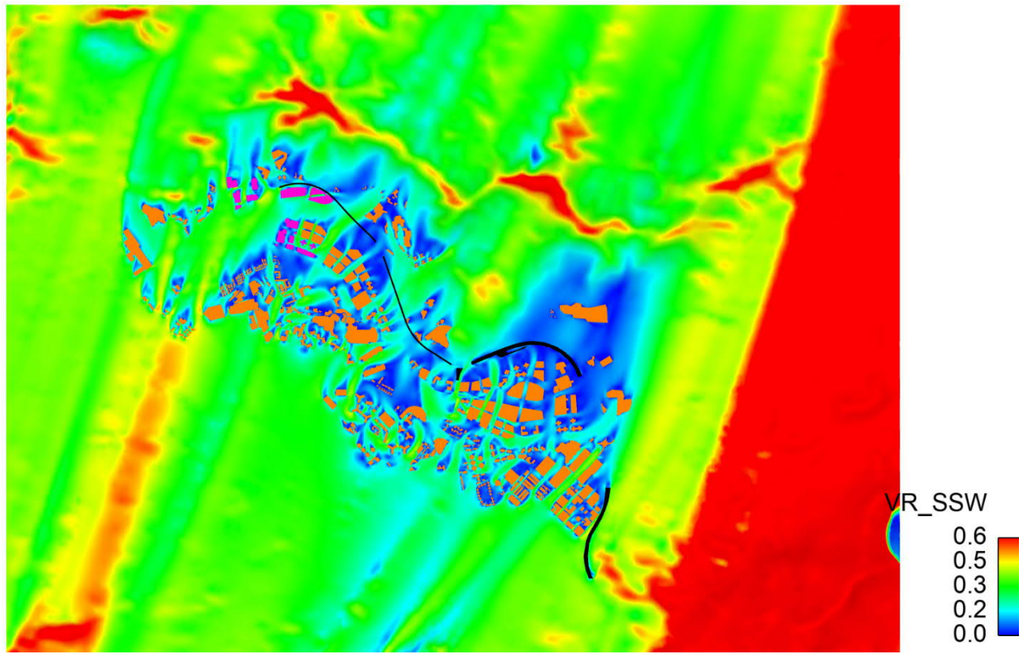

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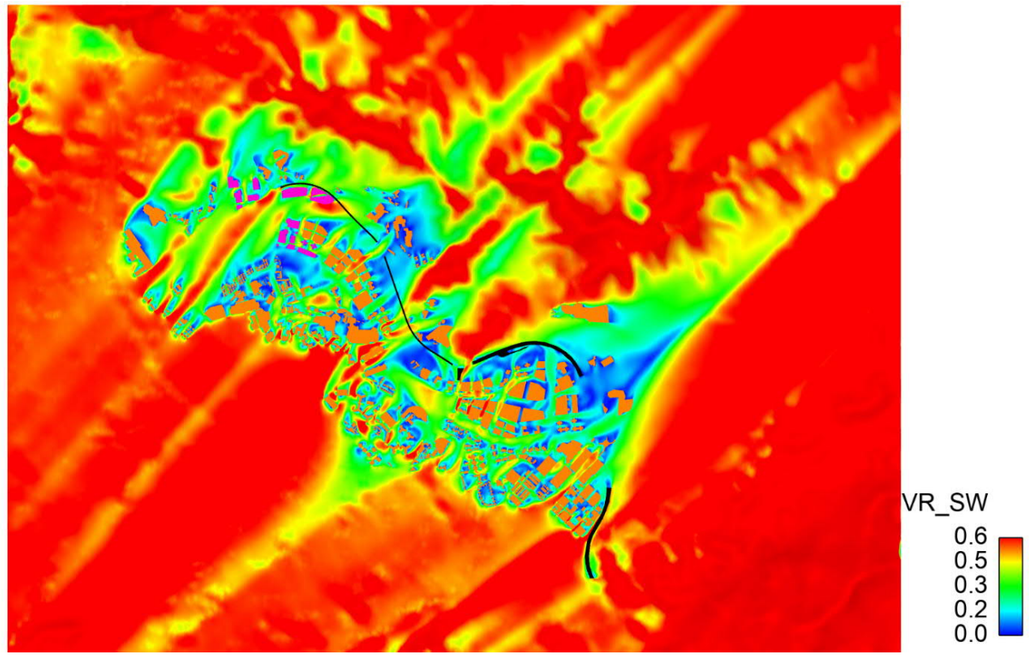

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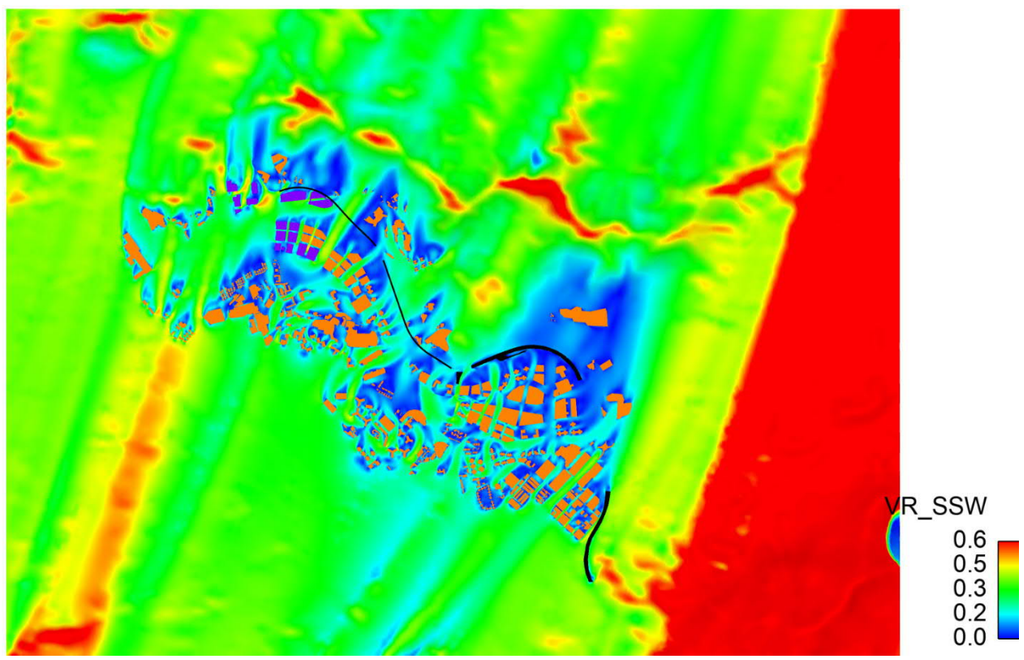

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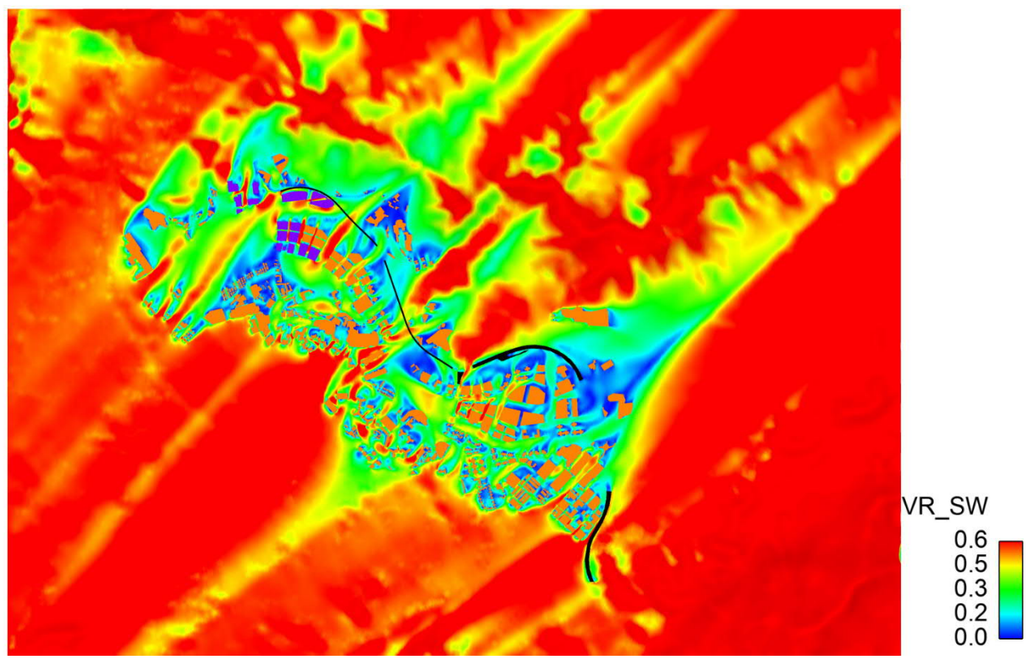

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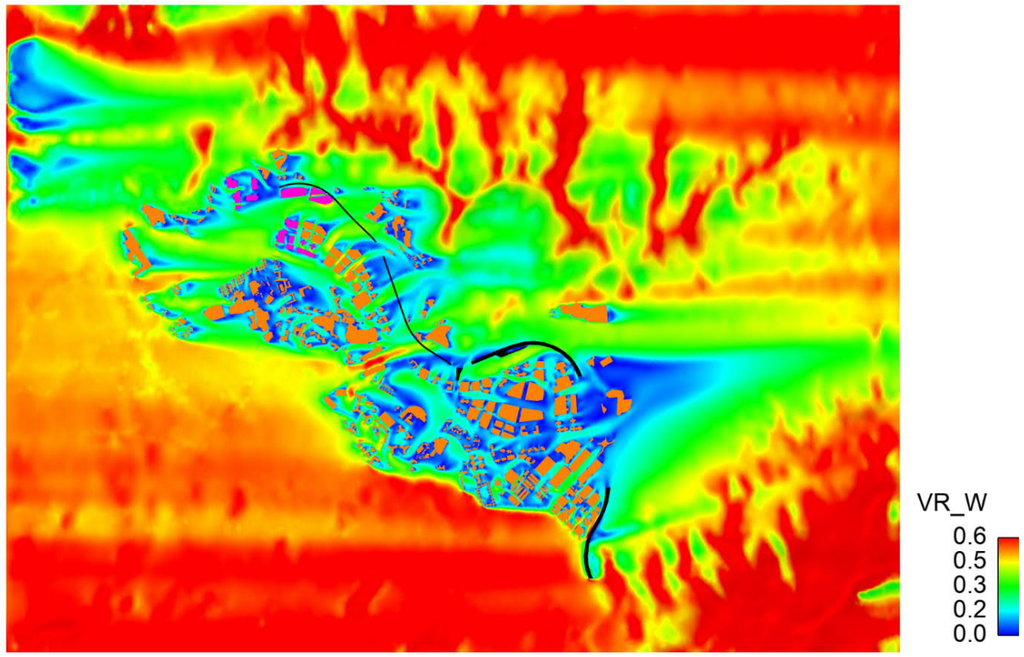

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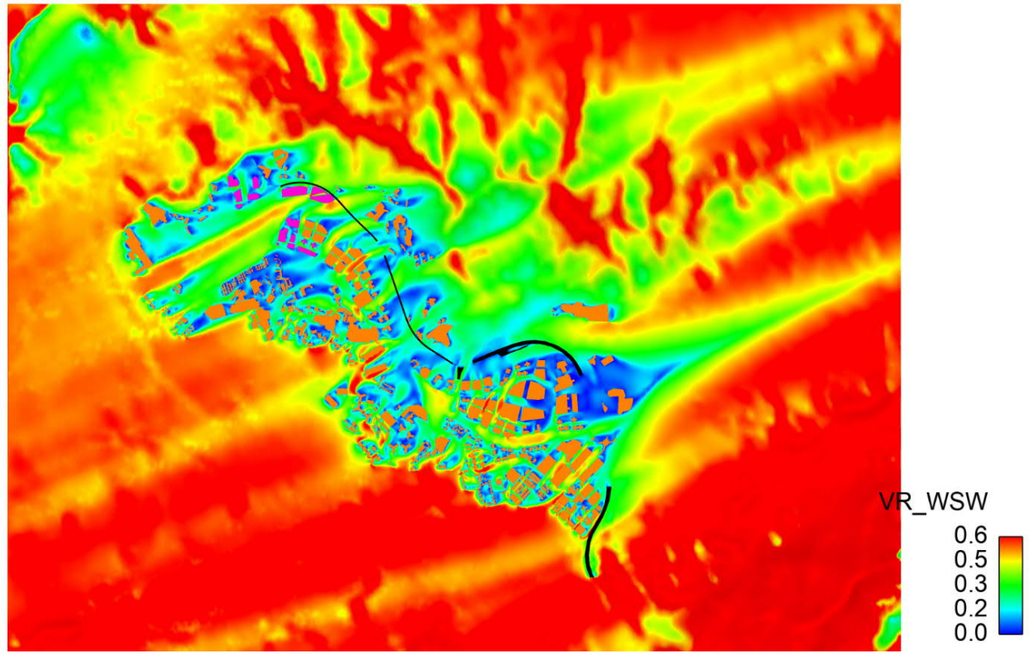

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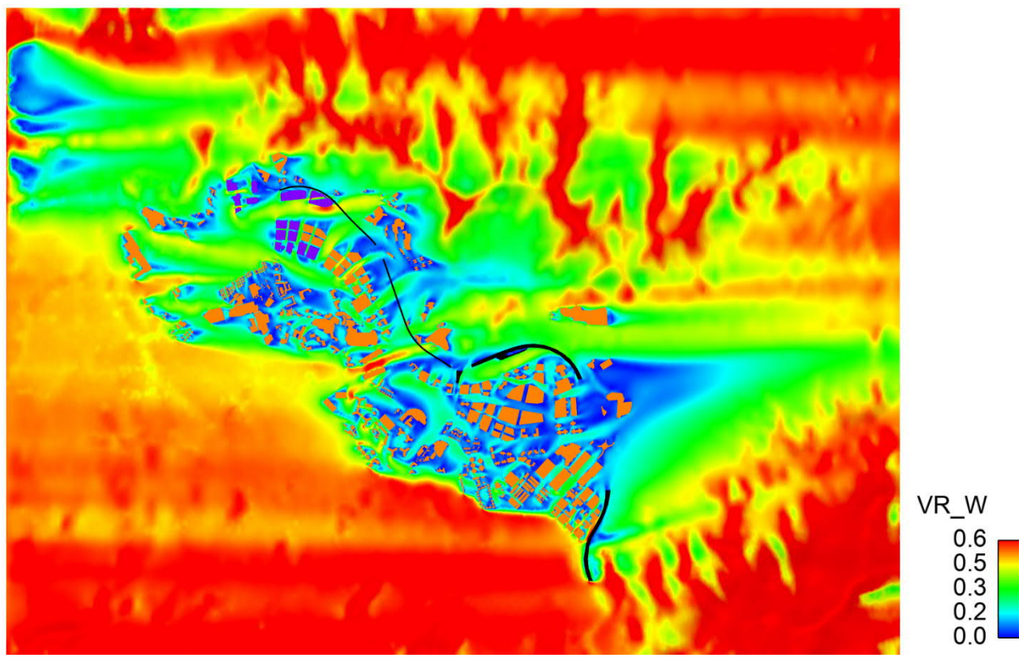

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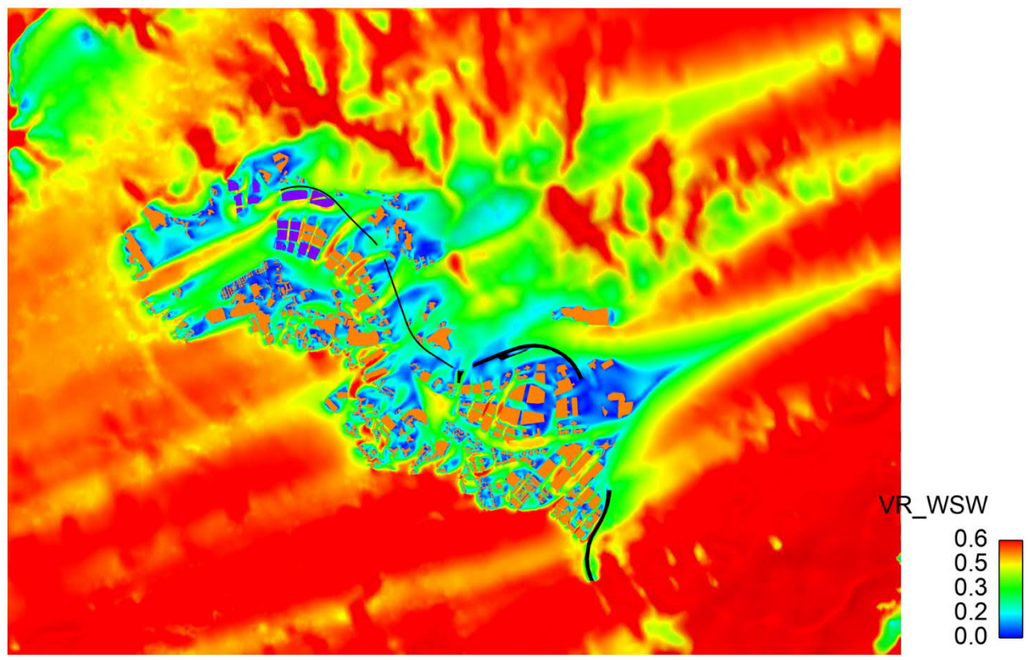
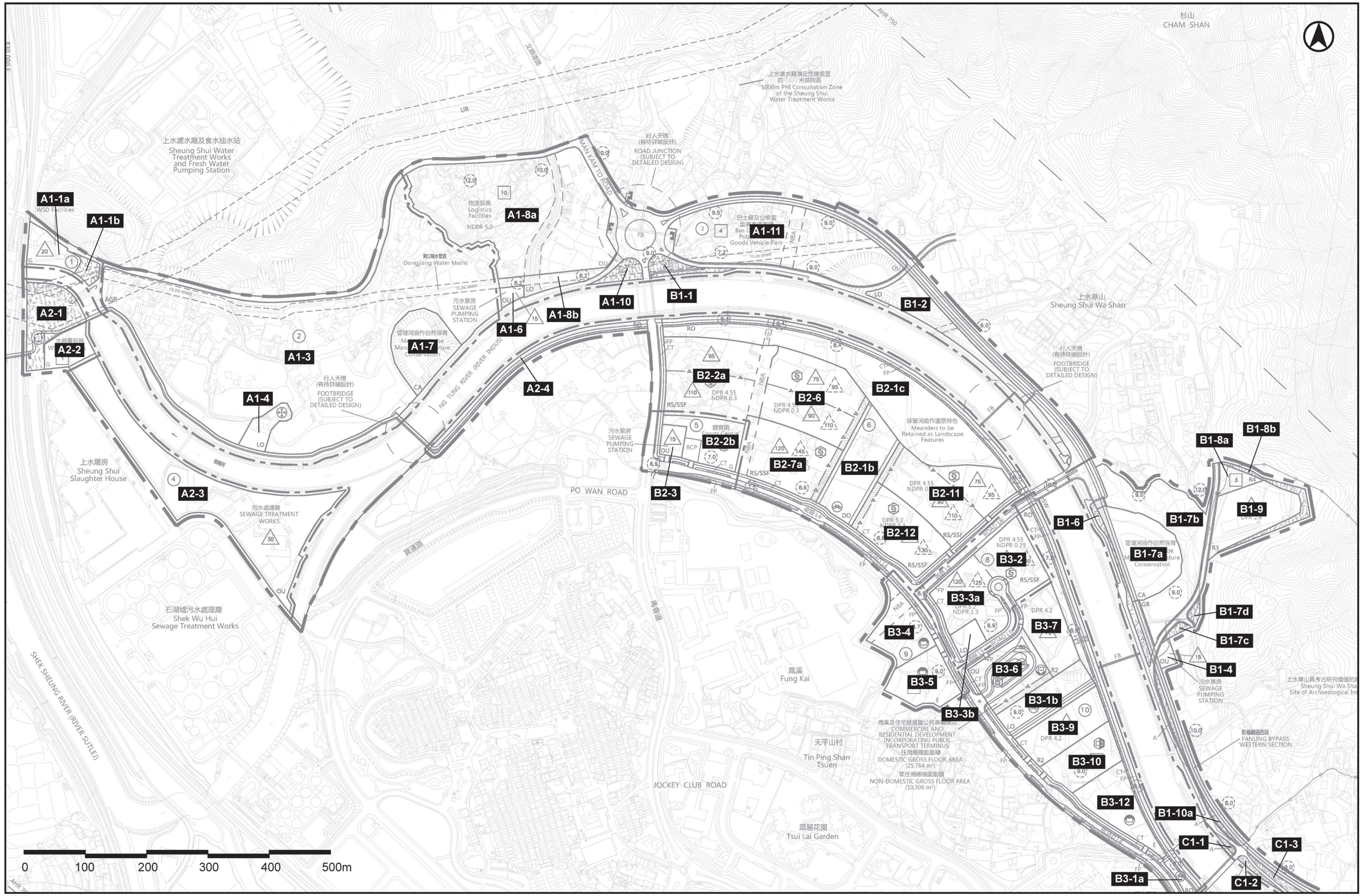


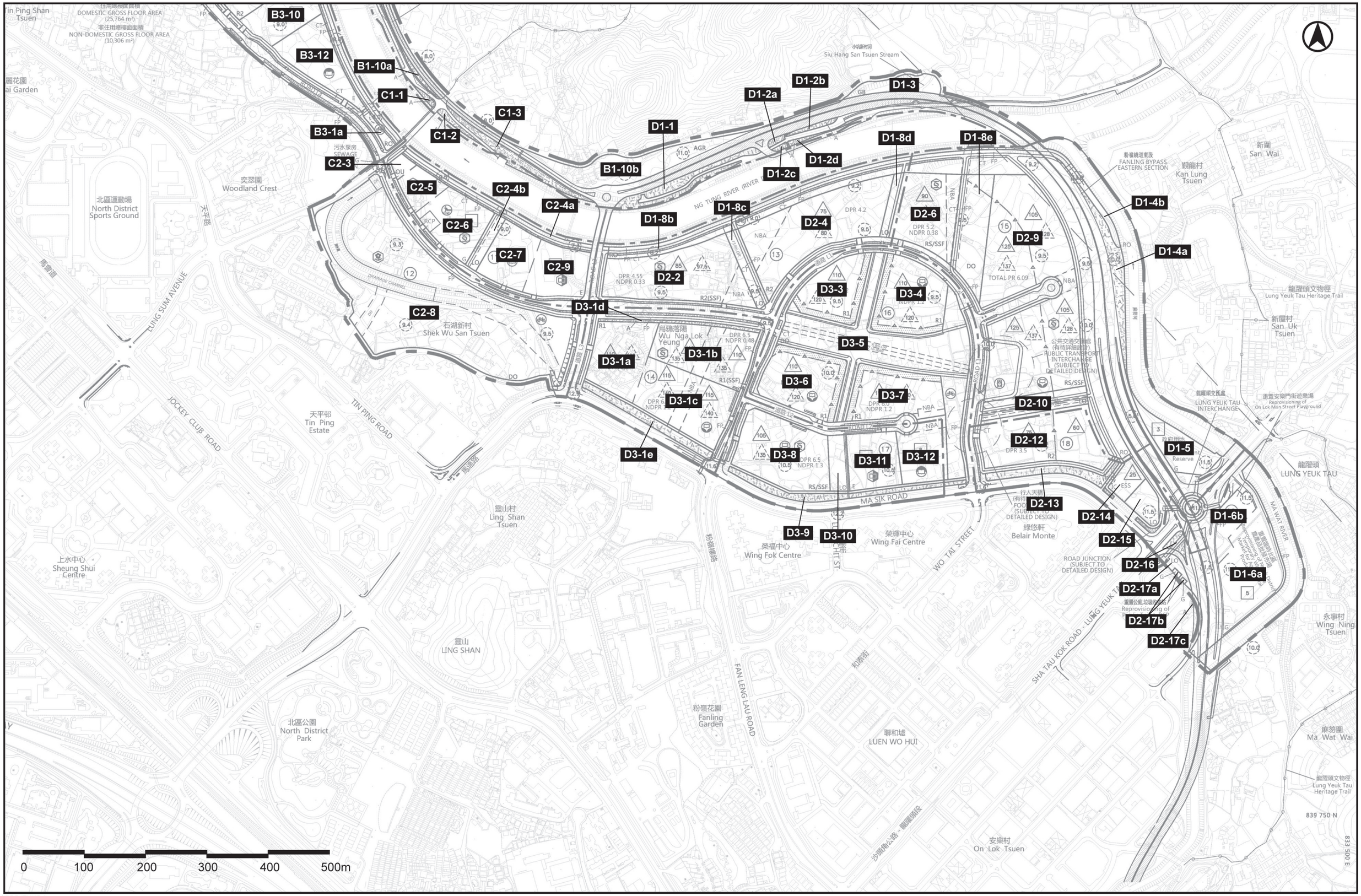
APPENDIX E

LAYOUT FOR SITE NUMBER REFERENCE



CEDD/FNNDA

FIGURE 3.3.1 SITE NO. REFERENCE (FLN NDA (WEST))



CEDD/FNNDA

FIGURE 3.3.2 SITE NO. REFERENCE (FLN NDA (EAST))

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1. BACKGROUND

1.1.1. This Traffic and Transport Impact Assessment (TTIA) Review (hereafter called "TTIA Review") is prepared to present the methodology, assumptions and findings for the traffic impact assessment induced by proposed minor relaxation in planning parameters for the planned public and private housing sites in FLN NDA.

1.1.2. FLN NDA cover a total area of about 94 hectares. FLN NDA will accommodate 28,160 flats for a target population of about 73,800 originally. FLN NDA is now proposed to accommodate about 36,310 flats for a target population of about 95,060.

1.1.3. The adequacy of the existing and planned transport system, and the requirements for capacity improvements or enhancement which will contribute to the feasibility of the development will also be reviewed and reported.

2. TRAFFIC IMPACT ASSESSMENTS

2.1. Traffic Impact Assessment

2.1.1. Traffic impact assessment has been conducted using the traffic models. The Area of Influence (AOI) covers all major roads and major junctions to be assessed in FLN NDA and the vicinity. The extent of the AOI for assessment is shown in **Drawing No. 5191059-TIA-2201**.

2.1.2. The conforming improvement works proposed under First Phase Assignment and to be implemented under the Remaining Phase development of Fanling North NDA are summarised in **Table 2.1**. These conforming junction improvements will be completed to suit the population programme accordingly.

Table 2.1 Summary of **Conforming Junction Improvement** Works

Index *(1)*	**Junction**	**Improvement Schemes**	**Implementation Project**
FJ8	Po Shek Wu Interchange	• Implementation of Po Shek Wu Flyover	Agreement No. CE 20/2019 (CE)
FJ9	Po Shek Wu Road / Choi Yuen Road	• Implementation of Po Shek Wu Flyover	Agreement No. CE 20/2019 (CE)
FJ21	Fanling Bypass / FLN Road L3	• Conversion from two to three arms roundabout	This Project
FJ22	Man Kam To Road / Fanling Bypass Western Section	• Forming a new roundabout	This Project
FJ23	Jockey Club Road / Po Wan Road / FLN Road L4	• Conversion from three to four arms signal controlled junction • Modification of method of control	This Project
FJ24	FLN Road L4 / FLN Road L6	• Forming a new signal controlled junction	This Project
FJ25	FLN Road L3 / FLN Road L4	• Forming a new signal controlled junction	This Project
FJ26	FLN Road L1 / FLN Road L4	• Forming a new signal controlled junction	This Project
FJ28	FLN Road L1 / Ma Sik Road / Fan Leng Lau Road	• Conversion from three to four arms signal controlled junction • Local widening of Ma Sik Road eastbound approach arm • Modification of traffic lane arrangements • Modification of method of control	This Project
FJ30	Fanling Bypass Western Section / FLN Road L6	• Forming a new signal controlled junction	This Project

*Remarks: (1) Refer to **Drawing No. 5191059-TIA-2303**.*

2.1.3. The performance of key road links and junctions for the scenarios after completion of Remaining Phase (i.e. years 2031, 2036 and 2041) are shown in **Tables 2.2** and **2.3** respectively. The locations of key road links and junctions are shown in **Drawing Nos. 5191059-TIA-2301** and **2303** respectively.

Table 2.2 Road Links Performance

Index (1)	Road Links	Direction	Configuration	Capacity (pcu/hr)	Year 2031 Design Scenario				Year 2036 Design Scenario				Year 2041 Design Scenario			
					AM		PM		AM		PM		AM		PM	
					Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio
FL1	Fanling Highway (south of Heung Yuen Wai Interchange)	NB	D4	8,200	7,685	0.94	7,845	0.96	7,675	0.94	7,995	0.98	7,915	0.97	8,225	**1.00**
		SB	D4	8,200	8,610	**1.05**	7,190	0.88	8,760	**1.07**	7,345	0.90	8,930	**1.09**	7,610	0.93
FL2	Fanling Highway (between Wo Hop Shek and So Kwun Po Interchange)	EB	D3	6,100	5,585	0.92	4,885	0.80	5,610	0.92	5,005	0.82	5,635	0.92	5,155	0.85
		WB	D3	6,100	5,120	0.84	4,725	0.77	5,075	0.83	4,720	0.77	5,195	0.85	4,745	0.78
FL3	Fanling Highway (between So Kwun Po and Po Shek Wu Interchange)	EB	D4	8,200	6,845	0.83	6,305	0.77	7,030	0.86	6,595	0.80	7,035	0.86	6,680	0.81
		WB	D4	8,200	6,395	0.78	5,635	0.69	6,520	0.80	5,825	0.71	6,495	0.79	5,780	0.70
FL7	Jockey Club Road (between Lok Yip Road and Pak Wo Road)	EB	D2	3,400	1,425	0.42	1,330	0.39	1,470	0.43	1,345	0.40	1,485	0.44	1,365	0.40
		WB	D2	3,400	1,445	0.43	1,495	0.44	1,420	0.42	1,525	0.45	1,505	0.44	1,640	0.48
FL8	Jockey Club Road (east of So Kwun Po Road)	EB	D2	2,800	930	0.33	820	0.29	865	0.31	830	0.30	860	0.31	855	0.31
		WB	D2	2,800	1,265	0.45	965	0.34	1,235	0.44	980	0.35	1,200	0.43	980	0.35
FL9	Jockey Club Road (west of So Kwun Po Road)	EB	D2	2,800	810	0.29	640	0.23	770	0.28	655	0.23	785	0.28	625	0.22
		WB	D2	2,800	880	0.31	795	0.28	870	0.31	825	0.29	865	0.31	815	0.29
FL10	Po Shek Wu Road (between Choi Yuen Road and San Wan Road)	NB	D2	2,800	1,925	0.69	1,795	0.64	1,950	0.70	1,815	0.65	2,005	0.72	1,850	0.66
		SB	D2	2,800	2,360	0.84	2,240	0.80	2,450	0.88	2,260	0.81	2,510	0.90	2,275	0.81
FL11	Jockey Club Road (between Po Shek Wu Road and Po Wan Road)	NB	D2	2,800	1,050	0.38	1,030	0.37	1,070	0.38	1,010	0.36	1,085	0.39	1,080	0.39
		SB	D2	2,800	1,375	0.49	1,410	0.50	1,450	0.52	1,435	0.51	1,475	0.53	1,450	0.52
FL12	Man Kam To Road (between Jockey Club Road and Fu Tei Au Road)	NB	S2	2,500	800	0.32	755	0.30	830	0.33	765	0.31	845	0.34	785	0.31
		SB	S1	1,500	785	0.52	1,080	0.72	795	0.53	1,090	0.73	870	0.58	1,120	0.75
FL13	Sha Tau Kok Road (between Luen On Street and Ma Sik Road)	NB	D2	2,800	1,055	0.38	1,145	0.41	1,055	0.38	1,160	0.41	1,065	0.38	1,200	0.43
		SB	D2	2,800	1,110	0.40	960	0.34	1,095	0.39	955	0.34	1,120	0.40	980	0.35
FL14	Sha Tau Kok Road (North of Lung Ma Road)	NB	D2	2,800	1,180	0.42	1,060	0.38	1,215	0.43	1,075	0.38	1,230	0.44	1,075	0.38
		SB	D2	2,800	1,080	0.39	1,020	0.36	1,095	0.39	1,025	0.37	1,075	0.38	1,045	0.37
FL23	Fanling Bypass Western Section between Man Kam To Road and FLN Road L6	EB	S1	1,250	435	0.35	515	0.41	445	0.36	545	0.44	515	0.41	575	0.46
		WB	S1	1,250	500	0.40	485	0.39	515	0.41	480	0.38	545	0.44	505	0.40
FL24	Fanling Bypass Western Section between FLN Road L6 and FLN Road L3	EB	S1	1,250	770	0.62	765	0.61	795	0.64	805	0.64	875	0.70	850	0.68
		WB	S1	1,250	720	0.58	850	0.68	755	0.60	855	0.68	810	0.65	890	0.71
FL25	Fanling Bypass Eastern Section between FLN Road L3 and Sha Tau Kok Road	EB	D2	3,000	1,170	0.39	1,095	0.37	1,215	0.41	1,155	0.39	1,320	0.44	1,220	0.41
		WB	D2	3,000	1,110	0.37	1,340	0.45	1,190	0.40	1,380	0.46	1,250	0.42	1,465	0.49
FL26	Fanling Bypass Eastern Section between Sha Tau Kok Road and Fanling Highway	EB	D2	3,400	1,940	0.57	1,605	0.47	2,015	0.59	1,675	0.49	2,115	0.62	1,745	0.51
		WB	D2	3,400	1,445	0.43	1,890	0.56	1,530	0.45	1,915	0.56	1,560	0.46	1,960	0.58
FL27	Fanling North NDA FLN Road L1	EB	S1	1,250	665	0.53	730	0.58	690	0.55	730	0.58	700	0.56	730	0.58
		WB	S1	1,250	520	0.42	465	0.37	535	0.43	470	0.38	540	0.43	490	0.39
FL28	Fanling North NDA FLN Road L4 (between FLN Road L3 and FLN Road L1)	EB	S1	1,250	735	0.59	685	0.55	770	0.62	700	0.56	795	0.64	745	0.60
		WB	S1	1,250	630	0.50	445	0.36	645	0.52	475	0.38	670	0.54	495	0.40
FL29	Fanling North NDA FLN Road L3	NB	S1	1,250	460	0.37	475	0.38	485	0.39	485	0.39	510	0.41	530	0.42
		SB	S1	1,250	535	0.43	435	0.35	550	0.44	470	0.38	580	0.46	500	0.40

Index (1)	Road Links	Direction	Configuration	Capacity (pcu/hr)	Year 2031 Design Scenario				Year 2036 Design Scenario				Year 2041 Design Scenario			
					AM		PM		AM		PM		AM		PM	
					Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio
FL30	Fanling North NDA FLN Road L4 (west of FLN Road L3)	EB	S1	1,250	485	0.39	465	0.37	515	0.41	480	0.38	550	0.44	510	0.41
		WB	S1	1,250	325	0.26	450	0.36	335	0.27	470	0.38	355	0.28	485	0.39
FL31	Fanling North NDA FLN Road L4 (east of FLN Road L6)	EB	S1	1,250	460	0.37	405	0.32	470	0.38	410	0.33	485	0.39	425	0.34
		WB	S1	1,250	535	0.43	365	0.29	560	0.45	390	0.31	570	0.46	410	0.33
FL32	Fanling North NDA FLN Road L4 (between Jockey Club Road and FLN Road L6)	EB	S1	1,250	565	0.45	460	0.37	560	0.45	460	0.37	590	0.47	490	0.39
		WB	S1	1,250	535	0.43	545	0.44	560	0.45	560	0.45	590	0.47	565	0.45
FL33	Pak Wo Road (between Jockey Club Road and Chi Fuk Circuit)	EB	D2	2,800	940	0.34	825	0.29	945	0.34	840	0.30	955	0.34	850	0.30
		WB	D2	2,800	1,205	0.43	1,015	0.36	1,220	0.44	1,035	0.37	1,250	0.45	1,055	0.38
FL34	Pak Wo Road (between Chi Fuk Circuit and So Kwun Po Road)	EB	D2	2,800	1,285	0.46	1,300	0.46	1,265	0.45	1,295	0.46	1,290	0.46	1,290	0.46
		WB	D2	2,800	1,460	0.52	990	0.35	1,445	0.52	1,000	0.36	1,475	0.53	1,015	0.36
FL35	Pak Wo Road (between So Kwun Po Road and Choi Yuen Road)	NB	S1	1,250	920	0.74	500	0.40	915	0.73	500	0.40	910	0.73	505	0.40
		SB	S1	1,250	570	0.46	625	0.50	570	0.46	620	0.50	570	0.46	615	0.49
FL36	Fan Kam Road (south of Castle Peak Road Kwu Tung)	NB	D2	2,800	1,420	0.51	1,555	0.56	1,390	0.50	1,405	0.50	1,420	0.51	1,555	0.56
		SB	D2	2,800	1,540	0.55	1,555	0.56	1,555	0.56	1,425	0.51	1,540	0.55	1,555	0.56
FL37	San Wan Road (east of Sha Tau Kok Road Lung Yeuk Tau)	EB	D2	2,800	605	0.22	565	0.20	575	0.21	565	0.20	625	0.22	570	0.20
		WB	D2	2,800	620	0.22	525	0.19	615	0.22	525	0.19	630	0.23	530	0.19
FL38	So Kwun Po Road (between San Wan Road and Jockey Club Road)	NB	D2	2,800	1,975	0.71	2,035	0.73	1,980	0.71	2,055	0.73	2,030	0.73	2,085	0.74
		SB	D2	2,800	2,270	0.81	1,735	0.62	2,270	0.81	1,760	0.63	2,345	0.84	1,780	0.64
FL39	Fan Leng Lau Road (near Ma Sik Road)	NB	D2	2,800	595	0.21	545	0.19	590	0.21	560	0.20	610	0.22	590	0.21
		SB	D2	2,800	330	0.12	330	0.12	330	0.12	340	0.12	350	0.13	355	0.13
FL40	Man Kam To Road (north of Fu Tei Au Road)	NB	S2	2,500	815	0.33	715	0.29	810	0.32	715	0.29	855	0.34	735	0.29
		SB	S1	1,500	695	0.46	995	0.66	700	0.47	995	0.66	750	0.50	1,015	0.68
FL45	Ping Che Road (near Sha Tau Kok Road)	NB	S1	1,250	725	0.58	835	0.67	730	0.58	860	0.69	810	0.65	985	0.79
		SB	S1	1,250	770	0.62	700	0.56	780	0.62	705	0.56	810	0.65	750	0.60

Remarks: *(1)* *Refer to* ***Drawing No. 5191059-TIA-2301****.*

Table 2.3 Junctions Performance

Index (1)	Junctions	Junction Type	Reserve Capacity (RC) or Design Flow / Capacity (DFC)					
			Year 2031 Design Scenario		Year 2036 Design Scenario		Year 2041 Design Scenario	
			AM	PM	AM	AM	PM	AM
FJ3	Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road	Signal Controlled	28%	28%	31%	28%	27%	26%
FJ4	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.63	0.64	0.65	0.66	0.65	0.65
FJ5	Jockey Club Road / San Wan Road / Lok Yip Road	Signal Controlled	62%	64%	62%	63%	53%	55%
FJ6	Jockey Club Road / So Kwun Po Road / Ma Sik Road	Signal Controlled	27%	47%	28%	45%	23%	42%
FJ7	So Kwun Po Interchange	Roundabout	0.73	0.68	0.72	0.70	0.76	0.72
FJ8	Po Shek Wu Interchange	Roundabout	**0.97**	**0.87**	0.82	0.75	0.84	0.76
FJ9	Po Shek Wu Road / Choi Yuen Road	Signal Controlled	**2%**	**10%**	**1%**	**10%**	**-2%**	**8%**
FJ10	Po Shek Wu Road / Po Wan Road	Signal Controlled	19%	26%	17%	26%	15%	24%
FJ11	Po Shek Wu Road / Jockey Club Road	Roundabout	0.51	0.52	0.54	0.52	0.56	0.53
FJ20	Lung Yeuk Tau Roundabout	Roundabout	0.65	0.65	0.67	0.66	0.69	0.68
FJ21	Fanling Bypass / FLN Road L3	Roundabout	0.43	0.43	0.44	0.44	0.49	0.46
FJ22	Roundabout of Man Kam To Road / Fanling Bypass Western Section	Roundabout	0.48	0.46	0.50	0.47	0.54	0.50
FJ23	Jockey Club Road / Po Wan Road / FLN Road L4	Signal Controlled	15%	**14%**	**13%**	**13%**	**8%**	**9%**
FJ24	FLN Road L4 / FLN Road L6	Signal Controlled	62%	85%	58%	78%	52%	70%
FJ25	FLN Road L3 / FLN Road L4	Signal Controlled	**22%**	33%	**18%**	30%	**14%**	**22%**
FJ26	FLN Road L1 / FLN Road L4	Signal Controlled	48%	51%	45%	49%	42%	46%
FJ27	FLN Road L3 / Ma Sik Road	Signal Controlled	15%	26%	**13%**	23%	**11%**	18%
FJ28	FLN Road L1 / Ma Sik Road / Fan Leng Lau Road	Signal Controlled	**13%**	16%	**12%**	**14%**	**8%**	**10%**
FJ29	FLN Road L1 / Ma Sik Road / Wo Tai Street	Signal Controlled	54%	77%	52%	73%	45%	72%
FJ30	Fanling Bypass Western Section / FLN Road L6	Signal Controlled	54%	44%	49%	38%	37%	33%
FJ36	Jockey Club Road / Access Road to Tong Hang	Priority / Signal Controlled	0.14	0.13	102%	88%	91%	75%
FJ37	Wo Tai Street / Luen On Street	Signal Controlled	22%	26%	22%	26%	17%	22%
FJ38	Fan Leng Lau Road / Wo Tai Street	Signal Controlled	42%	42%	46%	39%	43%	38%
FJ39	San Wan Road / Lung Wan Street	Priority	70%	84%	74%	84%	73%	85%
FJ40	Choi Yuen Road / Pak Wo Road Roundabout	Roundabout	0.63	0.56	0.63	0.56	0.63	0.56
FJ41	San Fung Avenue / Lung Sum Avenue / San Wan Road	Signal Controlled	112%	90%	112%	90%	110%	88%
FJ42	Jockey Club Road / Tin Ping Road	Signal Controlled	32%	31%	26%	30%	23%	28%
FJ48	Lung Sum Avenue / Tin Ping Road	Signal Controlled	**-3%**	**-3%**	**-2%**	**-5%**	**-8%**	**-5%**
FJ49	Lung Sum Avenue / Jockey Club Road	Signal Controlled	21%	33%	20%	33%	15%	35%
FJ50	So Kwun Po Road / Pak Wo Road	Signal Controlled	17%	26%	18%	25%	16%	23%
FJ51	Sha Tau Kok Road / Sui Wan Road	Signal Controlled	22%	28%	19%	27%	18%	25%
FJ52	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.75	0.72	0.76	0.73	0.77	0.74
FJ53	Pak Wo Road / Slip Road of Fanling Highway	Signal Controlled	18%	24%	17%	17%	**5%**	**13%**
FJ54	Man Kam To Road / Kong Nga Po Road	Priority	0.33	0.52	0.33	0.51	0.36	0.54
FJ55	Ma Sik Road / Tin Ping Road	Signal Controlled	34%	32%	33%	32%	29%	29%
FJ56	Po Wan Road / San Fung Avenue	Signal Controlled	37%	40%	35%	38%	31%	38%

Remarks: *(1)* *Refer to **Drawing No. 5191059-TIA-2303**.*

2.2. Performance of Key Road Links for Design Scenario

2.2.1. As shown in **Table 2.2**, most of the assessed road links would operate with satisfactory operation performance with V/C ratio less than 1.0 under all assessment scenarios, except Road Link FL1 – Fanling Highway (south of Heung Yuen Wai Interchange).

2.2.2. For Road Link FL1, it is expected to have V/C ratio below 1.1 in year 2041, indicating that there would be an onset of congestion at this strategic road link but the congestion would still be at a manageable degree. It is anticipated that the traffic at this strategic road link would be slower than that of the base year. Notwithstanding, the Government would explore possible long-term improvement schemes to mitigate the traffic impact to the said road links.

2.3. Performance of Key Junctions for Design Scenario

2.3.1. As shown in **Table 2.3**, most of the junctions would operate with acceptable junction performance under all assessment scenarios except the following junctions, which would operate with unacceptable junction performance for some assessment scenarios.

Po Shek Wu Interchange (FJ8)

2.3.2. Junction FJ8 would operate with unacceptable DFC above 0.85 in year 2031. However, this junction would operate with acceptable DFC below 0.85 in future design years 2036 and 2041 upon implementation of the planned junction improvement schemes by Tai Tau Leng Site in year 2032. Mitigation measure is not required under this Project.

Junction of Po Shek Wu Road / Choi Yuen Road (FJ9)

2.3.3. Junction FJ9 would operate with unacceptable RC below 15% in years 2031, 2036 and 2041. Junction improvement scheme is proposed to be implemented by year 2031 in order to cater for the population intake of the Remaining Phase. It is proposed to provide additional traffic lanes at Po Shek Wu Road northbound, Choi Yuen Road both eastbound and westbound in addition to the improvement of Po Shek Wu Flyover proposed under First Phase Assignment as shown in **Drawing No. 5191059-TIA-2502**. The conforming alignment of Po Shek Wu Flyover remains unchanged.

Junction of Jockey Club Road / Po Wan Road / FLN Road L4 (FJ23)

2.3.4. Junction FJ23 would operate with unacceptable RC below 15% in future years 2031, 2036 and 2041. The conforming design proposed under the First Phase Assignment would not be able to cater for the additional population intake of the Remaining Phase. It is proposed to provide additional traffic lane at Jockey Club Road northbound section between Po Wan Road and FLN Road L4 and setback the kerbline at the northeast corner at the intersection of Jockey Club Road and FLN Road K4 as shown in **Drawing No. 5191059-TIA-2503**.

Junction of FLN Road L3 / FLN Road L4 (FJ25)

2.3.5. Junction FJ25 would operate with unacceptable RC below 25% in future years 2031, 2036 and 2041. The conforming design proposed under the First Phase Assignment would not be able to cater for the additional population intake of the Remaining Phase. It is proposed to modify the refuge island at FLN Road L3 southbound to provide an additional southbound traffic lane, setback the kerbline at the northeast corner at the junction and modify the refuge island at FLN Road L4 westbound. As per TD's request, the junction is further modified to convert the conforming staggered crossings into straight crossings and provide an additional pedestrian crossing at FLN Road L3 northern arm. The proposed improvement schemes are shown in **Drawing No. 5191059-TIA-2504**.

Junction of FLN Road L3 / Ma Sik Road (FJ27)

2.3.6. Junction FJ27 would operate with unacceptable RC below 15% in future years 2036 and 2041. The conforming design proposed under the First Phase Assignment would not be able to cater for the additional population intake of the Remaining Phase. It is proposed to provide additional traffic lane at Ma Sik Road eastbound as shown in modify the method of control as shown in **Drawing No. 5191059-LUR-2306**.

Junction of FLN Road L1 / Ma Sik Road / Fan Leng Lau Road (FJ28)

2.3.7. Junction FJ28 would operate with unacceptable RC below 15% in all assessment years. The conforming design proposed under the First Phase Assignment would not be able to cater for the additional population intake of the Remaining Phase. It is proposed to modify the method of control as shown in **Drawing No. 5191059-TIA-2505**.

Junction of Lung Sum Avenue / Tin Ping Road (FJ48)

2.3.8. Junction FJ48 would be operated with unacceptable RC below 15% in all assessment years. Junction improvement scheme is proposed to be implemented by year 2031 in order to cater for the population intake of the Remaining Phase. It is proposed to provide additional traffic lanes at Lung Sum Avenue eastbound, Tin Ping Road northbound and southbound by converting the planters into carriageways as shown in **Drawing No. 5191059-TIA-2506**.

Junction of Pak Wo Road / Slip Road of Fanling Highway (FJ53)

2.3.9. Junction FJ53 would be operated with unacceptable RC below 15% under both year 2021 and 2041. Junction improvement scheme is proposed to be implemented by year 2031 in order to cater for the population intake of the Remaining Phase. It is proposed to modify the method of control by changing Signal Group 5 running on Stage A and Signal Group running on Stages B and C.

Junction Re-Assessments with Proposed Improvement Schemes

2.3.10. With the implementation of the aforementioned proposed junction improvement schemes, the problematic junctions would operate with acceptable operational performance as shown in **Table 2.4** in future design years.

Table 2.4 Junctions Performance – With Proposed Junction Improvement Schemes

Index (1)	Junctions	Junction Type	Reserve Capacity (RC) / Design Flow Capacity (DFC)						Proposed Implementation Project
			Year 2031 Design Scenario		Year 2036 Design Scenario		Year 2041 Design Scenario		
			AM	PM	AM	PM	AM	PM	
FJ9	Po Shek Wu Road / Choi Yuen Road	Signal Controlled	20%	21%	19%	20%	16%	22%	Agreement No. CE 20/2019 (CE)
FJ23	Jockey Club Road / Po Wan Road / FLN Road L4	Signal Controlled	29%	25%	26%	24%	20%	20%	This Project
FJ25	FLN Road L3 / FLN Road L4	Signal Controlled	37%	44%	32%	41%	27%	33%	This Project
FJ27	FLN Road L3 / Ma Sik Road	Signal Controlled	29%	44%	25%	39%	21%	30%	This Project
FJ28	FLN Road L1 / Ma Sik Road / Fan Leng Lau Road	Signal Controlled	21%	24%	20%	22%	16%	19%	This Project
FJ48	Lung Sum Avenue / Tin Ping Road	Signal Controlled	20%	23%	19%	21%	15%	20%	This Project
FJ53	Pak Wo Road / Slip Road of Fanling Highway	Signal Controlled	35%	47%	35%	34%	26%	35%	This Project

Remarks: *(1)* *Refer to **Drawing No. 5191059-TIA-2303**.*

3. TRAFFIC AND TRANSPORT CONTEXT OF FLN NDA

3.1. Proposed Road Network

3.1.1. The proposed final road network and road hierarchy in FLN NDA upon completion of Remaining Phase are shown in **Drawing Nos. 5191059-TIA-2403** to **2415** and **2601**. The road network will be designed in accordance with the guidelines stipulated in TPDM.

3.2. Proposed Pedestrian Network

3.2.1. A comprehensive pedestrian network will be provided within the FLN NDA. Promenade is proposed along Ng Tung River. Urban type street is proposed at the south of Ng Tung River. The proposed street types and proposed final pedestrian network in FLN NDA upon completion of Remaining Phase are shown in **Drawing No. 5191059-TIA-2602** and **2603** respectively. The pedestrian network will be designed in accordance with the guidelines stipulated in TPDM.

3.3. Proposed Cycle Track Network

3.3.1. Cycle tracks are proposed along most of the roads within FLN NDA. It will link with the existing cycle track network along Ma Sik Road and Sha Tau Kok Road. It will also connect to the planned cycle tracks along Sheung Yue River and Ng Tung River in KTN NDA. Cycling parking facilities are also proposed within FLN NDA. The proposed final cycle track network and locations of parking facilities in FLN NDA upon completion of Remaining Phase are shown in **Drawing No. 5191059-TIA-2604**. Typical cycle track width of 4.0m are proposed for the 2-way cycle tracks.

3.4. Parking and Loading / Unloading Facilities

3.4.1. The provision of internal parking (including cycle parking) and loading / unloading facilities for each development in FLN NDA will be governed by the requirements stipulated in the Hong Kong Planning Standard and Guideline (HKPSG) published by PlanD. It is anticipated that there is no necessity for the provision of on-street parking (including cycle parking) and loading / unloading facilities in FLN NDA.

3.4.2. Nevertheless, in view of availability of spaces within FLN NDA, it is proposed to provide 107 nos. on-street parking spaces and 2 nos. lay-bys for private car / taxi in FLN NDA upon completion of the Remaining Phase with reference to the proposal in the First Phase Assignment to alleviate the parking problems in existing Fanling area. The locations of these facilities are shown in **Drawing No. 5191059-TIA-2605**.

4. PUBLIC TRANSPORT FOR REMAINING PHASE

4.1.1. Public transport provision for FLN NDA was reviewed. In FLN NDA, high frequency local feeder services from the FLN NDA to the Fanling and Sheung Shui MTR Stations are recommended to encourage the use of rail-based transport mode.

4.1.2. It is forecasted that both North-South Corridor and East-West Corridor would both serve with V/C ratio below 1.0 under the passenger density level of 6 ppsm in year 2041.

4.1.3. Three public transport interchanges (PTIs) to accommodate 11 nos. bus routes are proposed to cater for the passenger demand of FLN NDA. The proposed PTIs are located at FLN Road L1 (Area 15), FLN Road L4 (Area 10) and FLN Road L4 (roadside). The proposed bus routes are summarized in **Table 4.1**.

Table 4.1 Proposed Bus Routes

PTI Location	Servicing Area	Nos. of Bus Routes	Proposed Trips per Hour (veh/hr)	Hourly Passenger Capacity (pax/hr) (1)	Max. Peak Hour Patronage (pax/hr)	Occupancy
FLN Road L1 (Area 15)	Route No. 1 - FLN NDA, Kowloon	4	10	4,800	9,400	71%
	Route No. 2 - FLN NDA, Hong Kong Island					
	Route No. 3 - FLN NDA, Sheung Shui Station					
	Route No. 4 – FLN NDA, NWNT					
FLN Road L4 (Area 10)	Route No. 5 - FLN NDA, Fanling Station	5	10	6,000		
	Route No. 6 - FLN NDA, SWNT					
	Route No. 7 - FLN NDA, Sha Tin / Ma On Shan					
	Route No. 8 – FLN NDA, Kowloon					
	Route No. 9 – FLN NDA, Hong Kong Island					
FLN Road L4 (roadside)	Route No. 10 – FLN NDA, Fanling / Sheung Shui	2	10	2,400		
	Route No. 11 – FLN NDA, KTN NDA, San Tin					
	Total	**11**	**110**	**13,200**	**9,400**	**71%**

Notes: (1) Hourly Passenger Capacity = (60 min. / Assumed Headway) x Passenger Seating Capacity per bus (i.e. 120 pax/veh).

4.1.4. As shown in **Table 4.1**, the occupancy of the proposed bus routes at FLN NDA would be less than 75% meeting the guideline of latest Bus Route Planning Programme 2022-2023 of North District.

4.1.5. In addition, a green mini-bus stand is proposed on Road L1 near FLN NDA Area 14.

5. CONCLUSION

5.1.1. In conclusion, the transport and traffic assessment review has confirmed that the proposed traffic improvement schemes, the highway and transport systems could address the traffic demand from intensification of all housing sites under Remaining Phase development of FLN NDA. The proposed minor relaxation of planning parameters on the public and private housing sites in FLN NDA is technically feasible from the traffic and transport point of view.

FIGURES

LO WU

NG TUNG RIVER

TENTATIVE FRESH WATER SERVICE RESERVOIR

TENTATIVE SEWAGE PUMPING STATION

SITE 4

SITE 5

SITE M

TENTATIVE FANLING BYPASS (WESTERN SECTION)

HO SHEUNG HEUNG

SHEUNG YUE RIVER

SITE 6

TENTATIVE SEWAGE PUMPING STATION

SHEUNG SHUI

TENTATIVE SEWAGE PUMPING STATION

SITE K

LONG VALLEY

SITE L

LUNG YEUK TAU

SITE H

YIN KONG

SHEK WU HUI

TENTATIVE PO SHEK WU ROAD FLYOVER

SITE I

SITE J

FAN LENG LAU ROAD

LUEN WO HUI

LOK YIP ROAD

JOCKEY CLUB ROAD

FANLING

TENTATIVE KWU TUNG INTERCHANGE

TENTATIVE FLUSHING WATER SERVICE RESERVOIR

WO HOP SHEK

LOATION PLAN

LO WU

LOK MA CHAU

SHEUNG SHUI

FANLING

LEGEND:

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- BOUNDARY OF KWU TONG NORTH NEW DEVELOPMENT AREA
- AREA OF INFLUENCE
- DEVELOPMENT OF FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE)
- DEVELOPMENT OF KWU TONG NORTH NEW DEVELOPMENT AREA (REMAINING PHASE)
- IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION)
- SECONDARY SERVICE RESERVOIRS AND ASSOCIATED TRUNK MAINS AND DISTRIBUTION MAINS IN FANLING NORTH

Rev.	Date	Description	By	Chk'd	App'd
C	MAY 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	AUG 2020	FIRST ISSUED	KLC	PT	JY

Drawing Status

Suitability

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土木工程拓展署
Civil Engineering and Development Department

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NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

GENERAL LAYOUT PLAN OF FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)

Scale	Designed	Drawn	Checked	Authorised
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Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2201

Revision: C

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LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)
- KEY ROAD LINK
- ROAD LINK ASSESSED
- FL1 INDEX OF ROAD LINK NO. 1

Rev.	Date	Description	By	Chk'd	App'd
D	JUL 2022	FORTH ISSUED	KLC	PT	JY
C	MAY 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	AUG 2020	FIRST ISSUED	KLC	PT	JY

Drawing Status

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Project Title
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title
LOCATION PLAN FOR ROAD LINKS IN FANLING NORTH NEW DEVELOPMENT AREA

Scale	Designed	Drawn	Checked	Authorised
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Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2301 Revision: D

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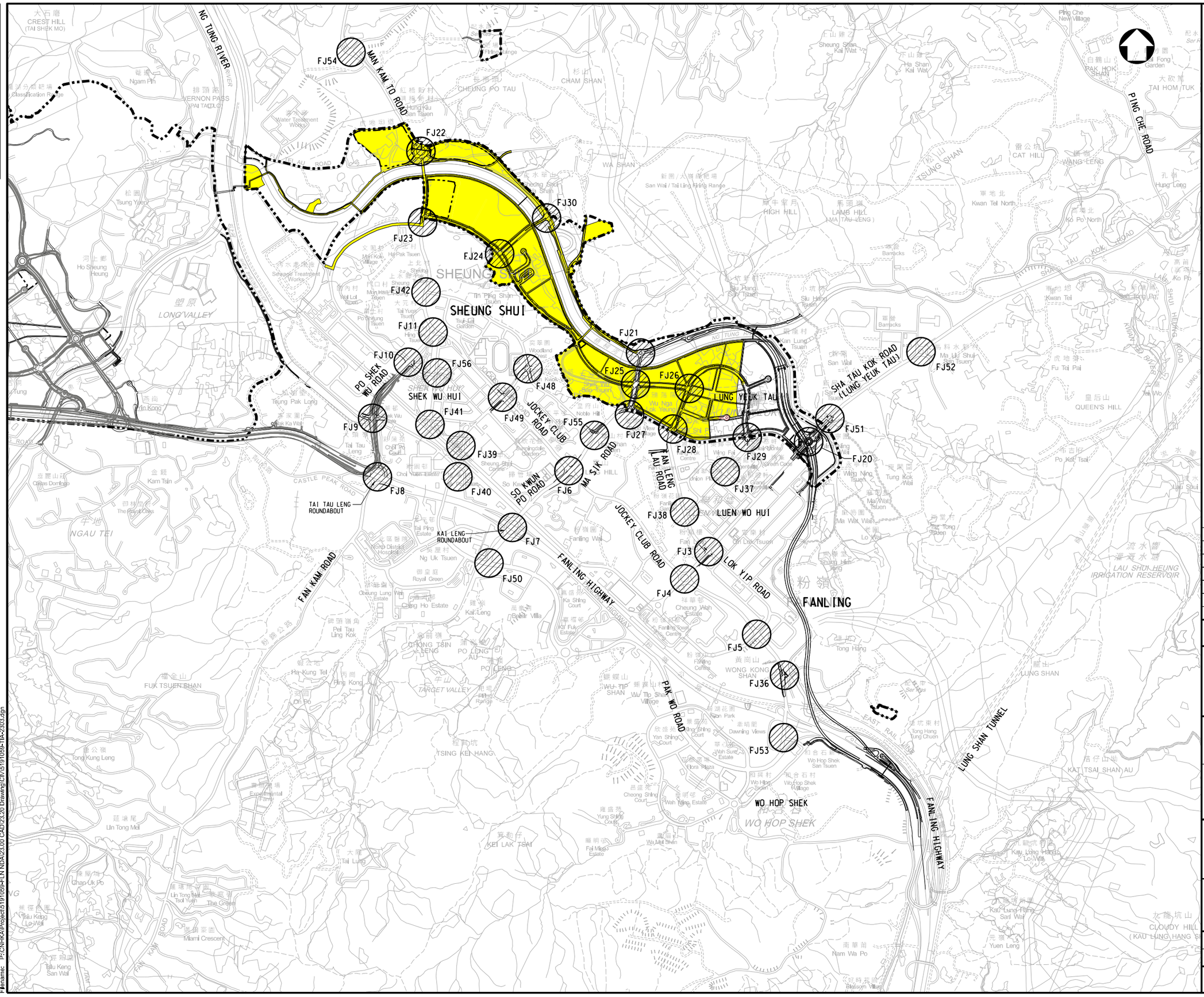

LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)
- KEY JUNCTION
- JUNCTION ASSESSED
- FJ3 INDEX OF JUNCTION NO. 3

Rev.	Date	Description	By	Chk'd	App'd
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C	MAY 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	AUG 2020	FIRST ISSUED	KLC	PT	JY

Drawing Status

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

LOCATION PLAN FOR JUNCTIONS IN FANLING NORTH NEW DEVELOPMENT AREA

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N.T.S.	KH	KLC	PT	JY
Original Size	Date	Date	Date	Date
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Drawing Number: 5191059-TIA-2303

Revision: D

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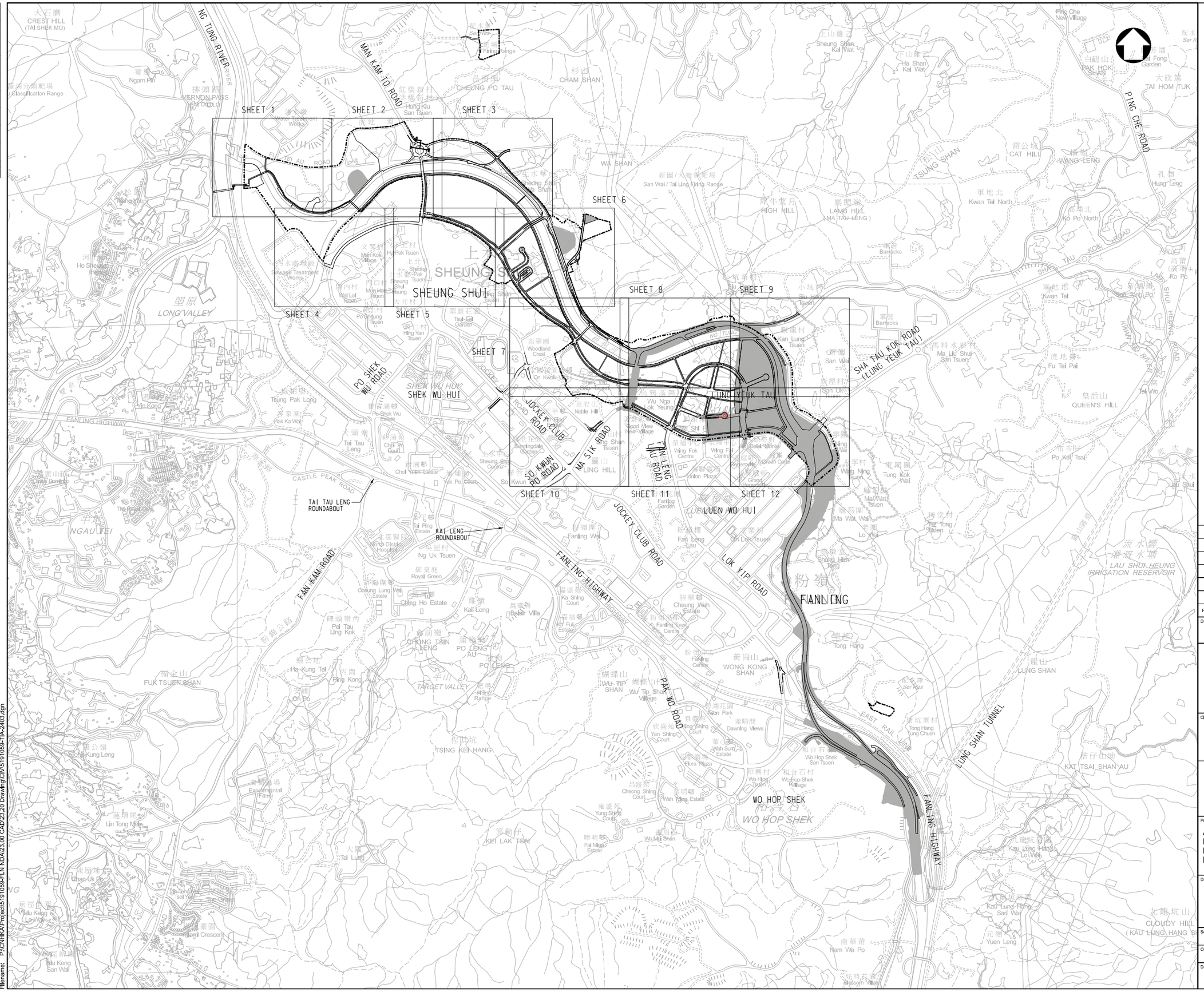

LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- FLN NDA PHASE 1 / ADVANCE PHASE WORKS LIMIT

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUE	KLC	PT	JY
B	DEC 2021	SECOND ISSUE	KLC	PT	JY
A	AUG 2020	FIRST SUBMISSION	KLC	PT	JY

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

KEY PLAN OF FINAL
ROAD NETWORK (2031)

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Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2403

Revision: C

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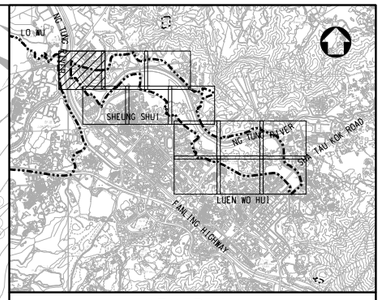

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

SHEUNG SHUI TREATMENT WORKS AND FRESH WATER PUMPING STATION

SHEUNG YUE RIVER

NG TUNG RIVER (RIVER INDUS)

MATCH LINE
FOR CONTINUATION
SEE DWG TIA-2407

MATCH LINE
FOR CONTINUATION
SEE DWG TIA-2405

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THRID ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Client: CEDD 土木工程拓展署 Civil Engineering and Development Department

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:
FINAL ROAD NETWORK
(2031) (SHEET 1)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2404

Revision: C

User name: YEUN7000 Date:21/7/2022 Time:16:37:26
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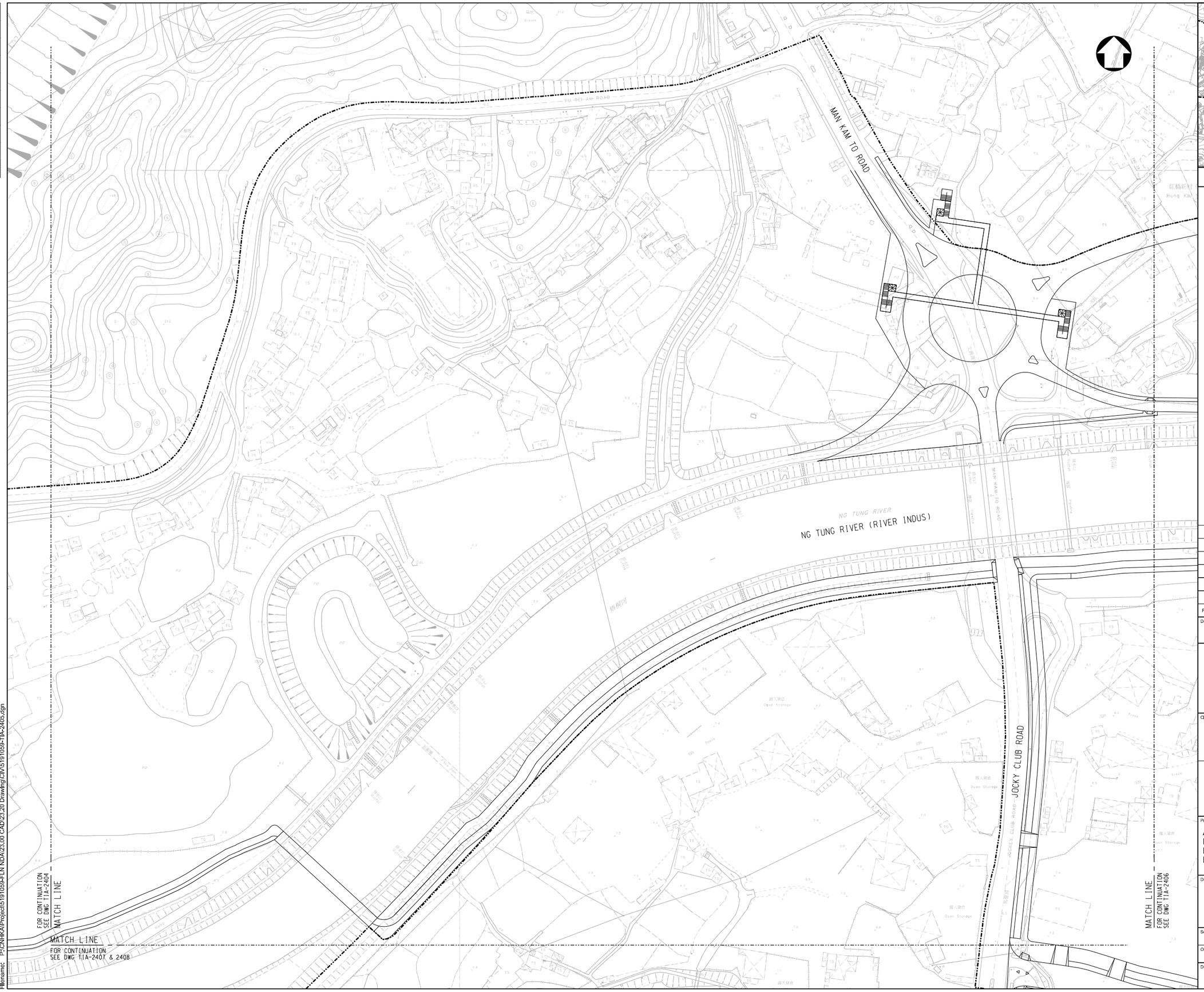

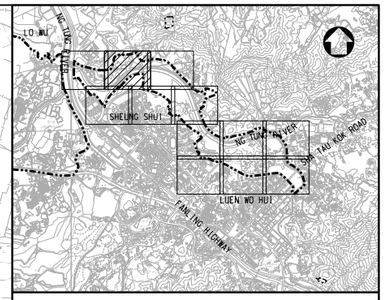

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	VAR	VAR
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Client

CEDD 土木工程拓展署
Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 2)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2405

Revision: C

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User name: YEUN7000 Date:21/7/2022 Time:16:37:17
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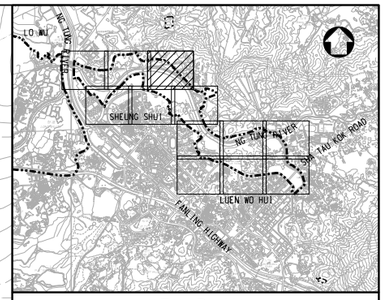

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 3)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2406

Revision: C

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User name: YEUN7000 Date:21/7/2022 Time: 18:37:08
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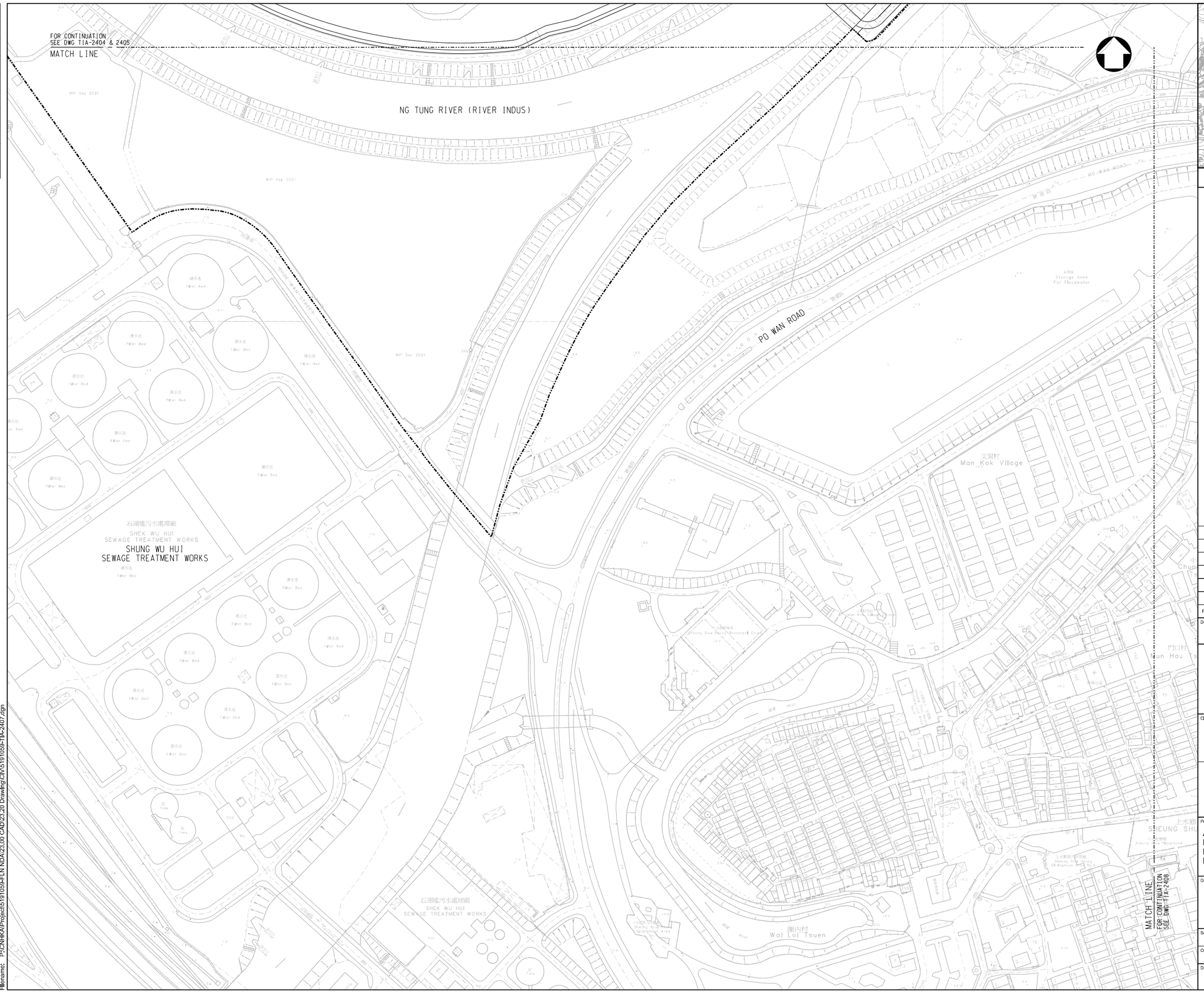

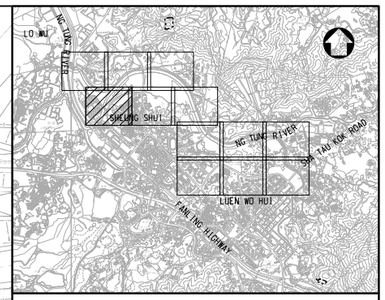

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status

Suitability

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Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 4)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2407

Revision: C

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User name: YEUN7000 Date:21/7/2022 Time: 16:36:58
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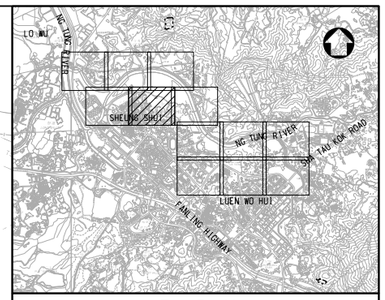

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
D	JUL 2022	FORTH ISSUED	KLC	VAR	VAR
C	DEC 2021	THIRD ISSUED	KLC	VAR	VAR
B	JUL 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: —

Suitability: —

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Civil Engineering and Development Department

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NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 5)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2408

Revision: D

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User name: YEUN7000 Date:21/7/2022 Time:18:36:48
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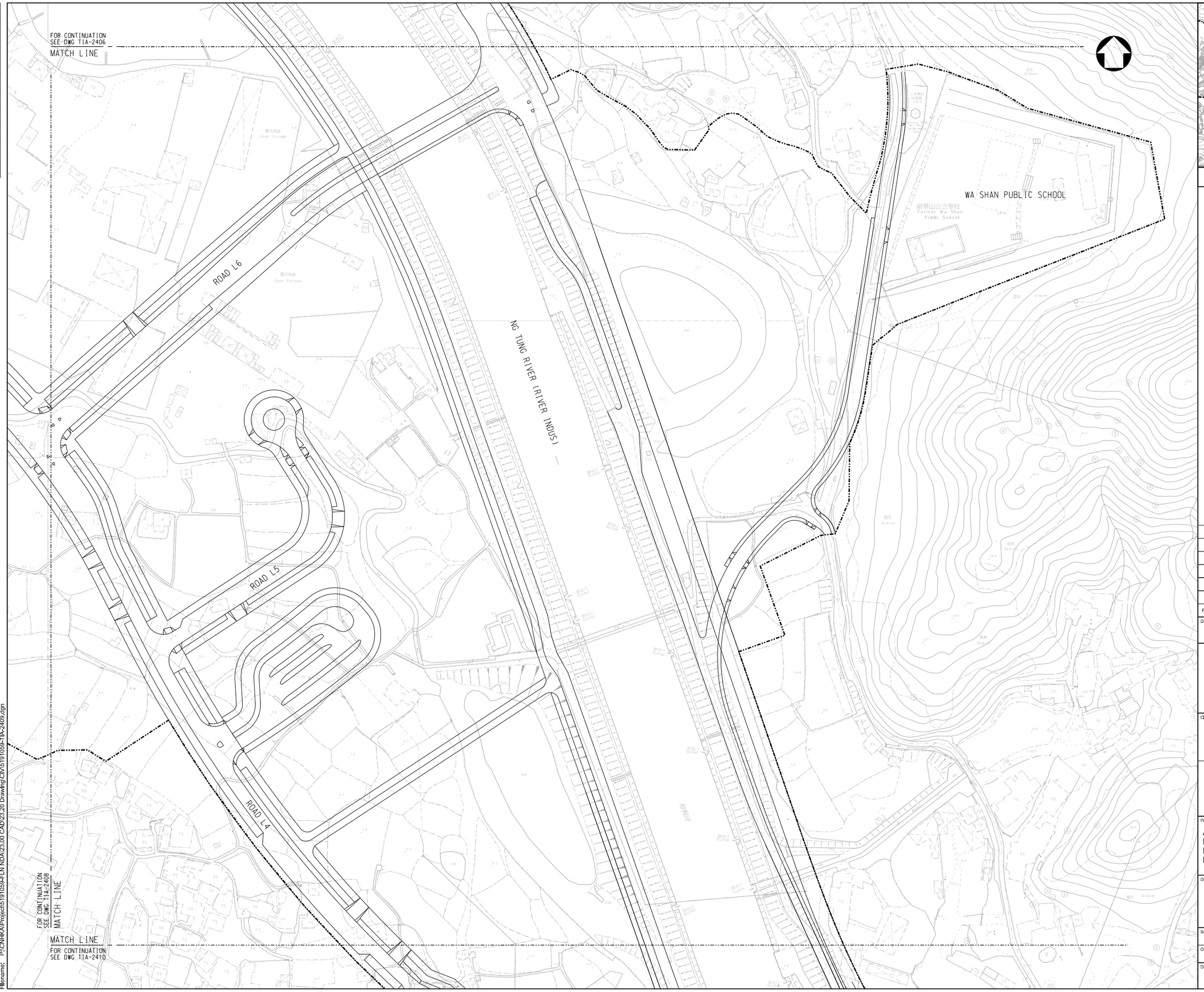

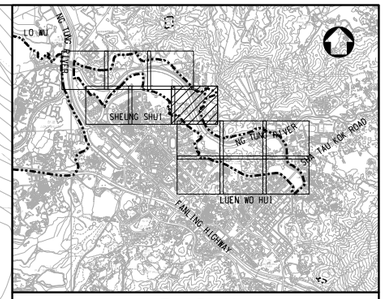

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
D	JUL 2022	FORTH ISSUED	KLC	PT	JY
C	DEC 2021	THIRD ISSUED	KLC	VAR	VAR
B	JUL 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: =

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CEDD
Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 6)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2409

Revision: D

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User name: YEUN7000 Date:21/7/2022 Time: 18:36:39
Filename: P:\CNHKA\Project\5191059-FLN NDA\23.00 CAD\23.20 Drawing\CIV\5191059-TIA-2409.dgn

Millimetres 0 10 100

FOR CONTINUATION SEE DWG TIA-2409
MATCH LINE

ROAD L4

NG TUNG RIVER (RIVER INDUS)

OPEN STORAGE

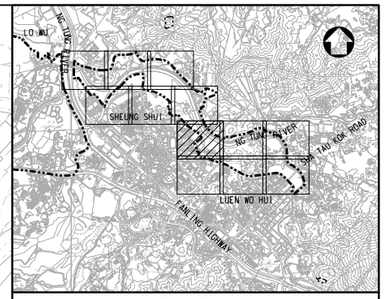
TIN PING SHAN (SACRED HILL)

TIN PING ROAD

LUNG SAM AVENUE

MATCH LINE
FOR CONTINUATION SEE DWG TIA-2413

MATCH LINE
FOR CONTINUATION SEE DWG TIA-2411



KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
D	JUL 2022	FORTH ISSUED	KLC	PT	JY
C	DEC 2021	THIRD ISSUED	KLC	VAR	VAR
B	JUL 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION
Suitability: -

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CEDD 土木工程拓展署
Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title
FINAL ROAD NETWORK (2031) (SHEET 7)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2410
Revision: D

User name: YEUN7000 Date:21/7/2022 Time: 18:36:29
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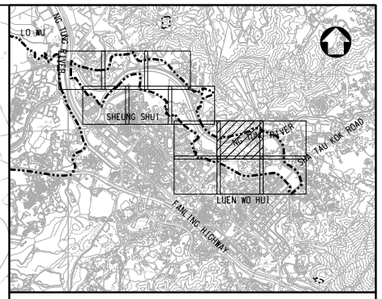

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: =

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Client: 土木工程拓展署 CEDD Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:
FINAL ROAD NETWORK
(2031) (SHEET 8)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2411

Revision: C

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User name: YEUN7000 Date:21/7/2022 Time: 18:36:20
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Millimetres 100 0 10

NG TUNG RIVER (RIVER INDUS)

NG TUNG RIVER

MA WAT RIVER

FANLING BYPASS

ROAD L1

MATCH LINE
FOR CONTINUATION
SEE DWG TIA-2411

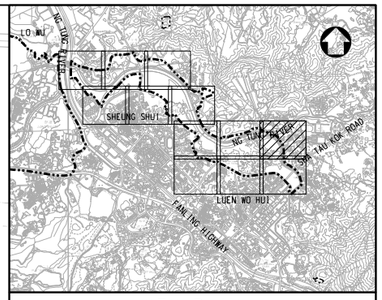
MATCH LINE
FOR CONTINUATION
SEE DWG TIA-2415

Kan Lung Tsuen

San Wai (Kan Lung Wai)

Suen Douh Camp

San Uk Tsuen



KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
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B	DEC 2021	FIRST ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 9)

Scale	Designed	Drawn	Checked	Authorised
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Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2412

Revision: C

User name: YEUN7000 Date:21/7/2022 Time: 18:36:10
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FOR CONTINUATION
SEE DWG TIA-2410
MATCH LINE

SHEK WU SAN TSUEN

TIN PING ESTATE

TIN PING ROAD

JOCKEY CLUB ROAD

CHI CHEONG ROAD

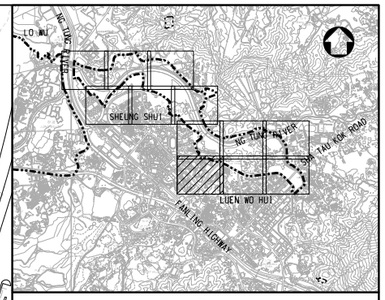
MA SIK ROAD

MA SIK ROAD

LING HILL

MATCH LINE
FOR CONTINUATION
SEE DWG TIA-2414

Millimetres 0 10 100



KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 10)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2413

Revision: C

User name: YEUN7000 Date:21/7/2022 Time: 18:36:00
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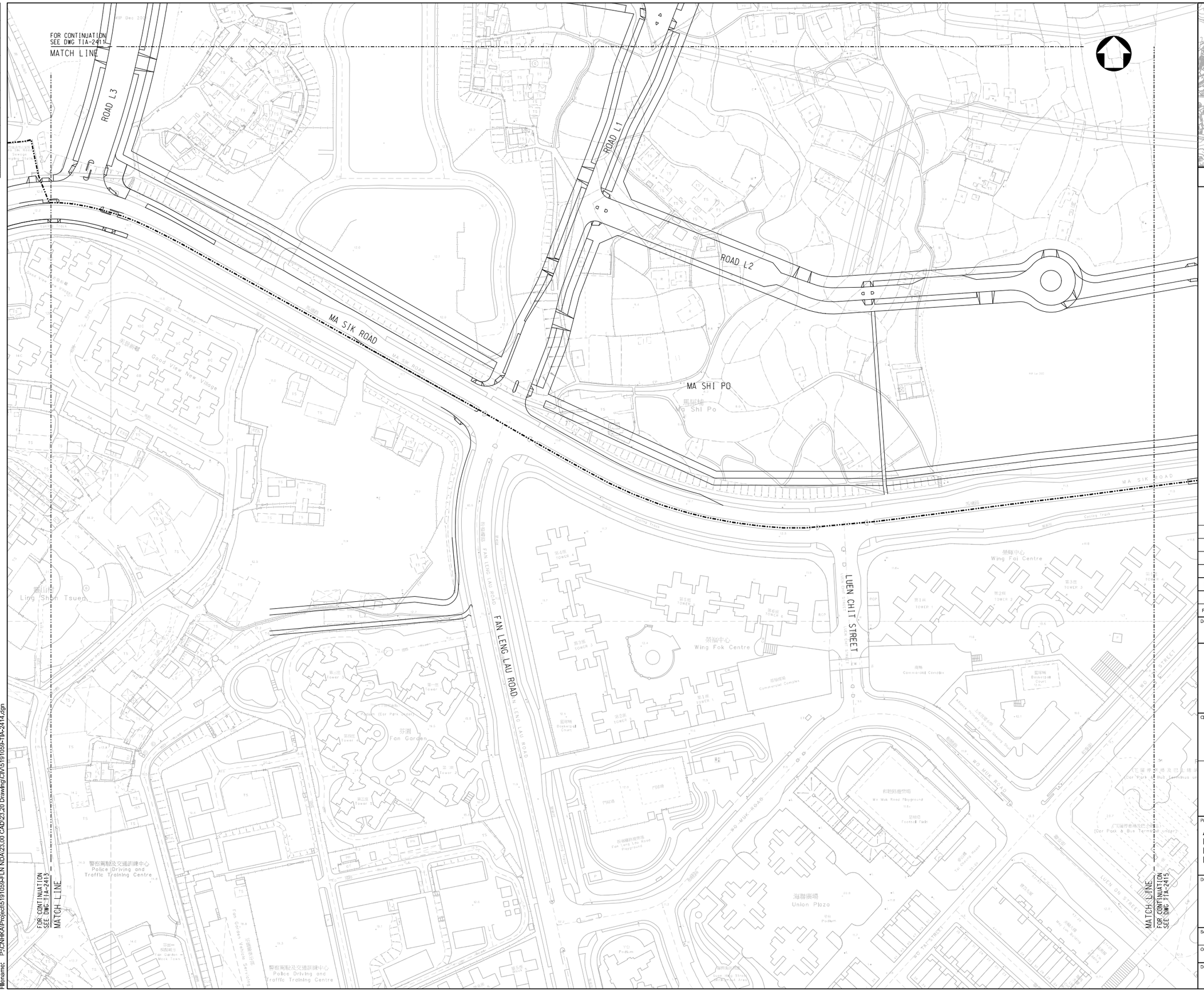

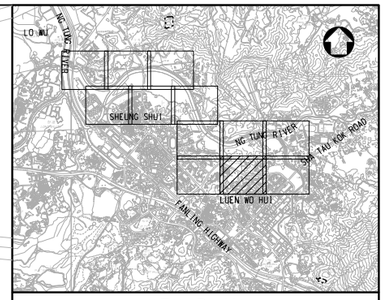

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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土木工程拓展署
Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

FINAL ROAD NETWORK
(2031) (SHEET 11)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	AUG 2020	AUG 2020	AUG 2020	AUG 2020

Drawing Number: 5191059-TIA-2414

Revision: C

User name: YEUN7000 Date:21/7/2022 Time:18:58:38
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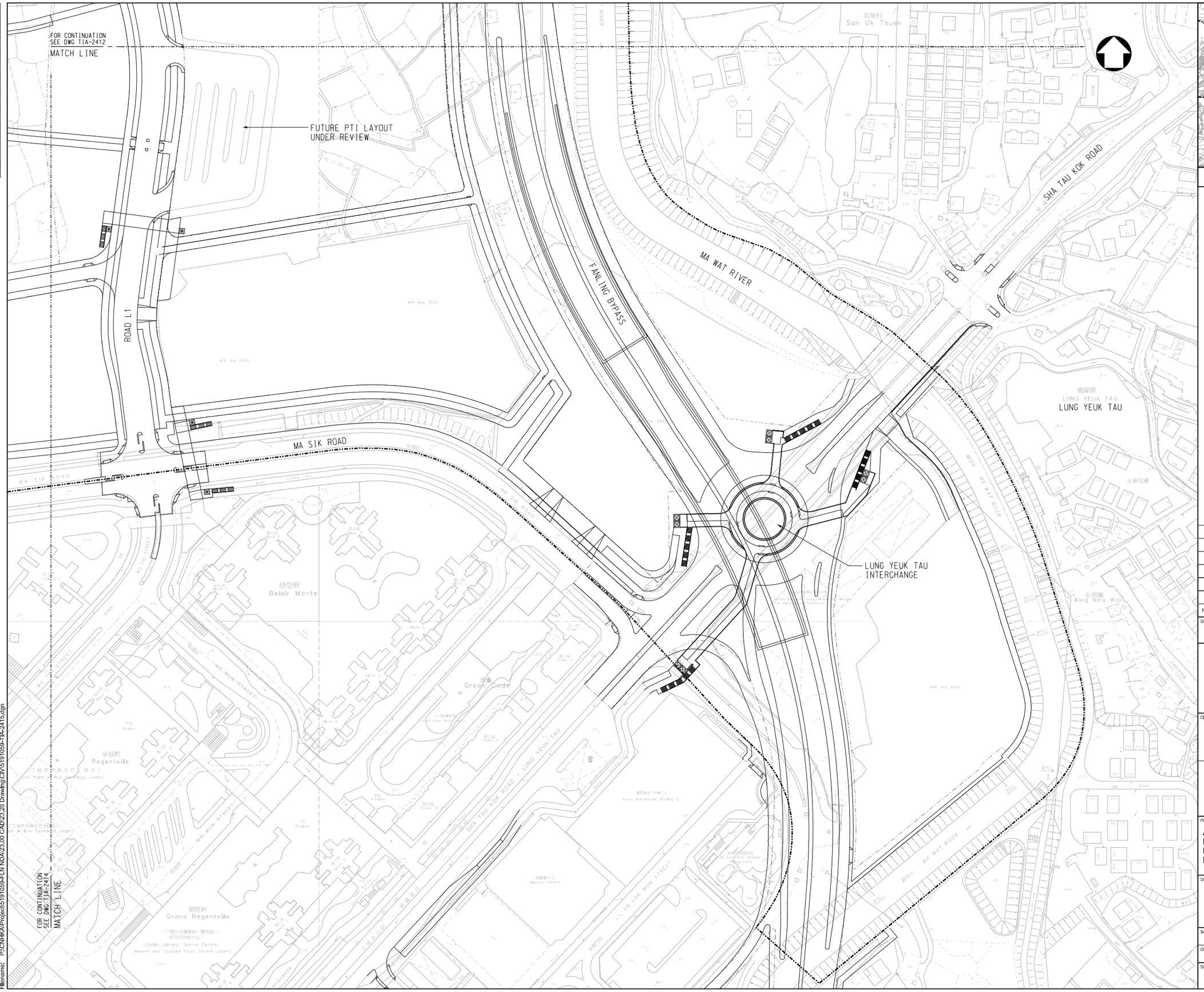

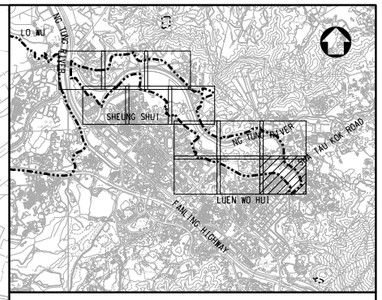

KEY PLAN

NOTES:

1. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NO. TIA-2404 TO 2415.

LEGEND:

BOUNDARY OF NEW DEVELOPMENT AREA

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	VAR	VAR
A	AUG 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

Suitability: -

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Client: 土木工程拓展署 Civil Engineering and Development Department

北拓展處
NORTH DEVELOPMENT OFFICE

Project Title: AGREEMENT NO. CE 18/2019 DEVELOPMENT OF FANLING NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title: FINAL ROAD NETWORK (2031) (SHEET 12)

Scale	Designed	Drawn	Checked	Authorised
1:1000	VAR	KLC	VAR	VAR
Original Size: A1	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020	Date: AUG 2020

Drawing Number: 5191059-TIA-2415

Revision: C

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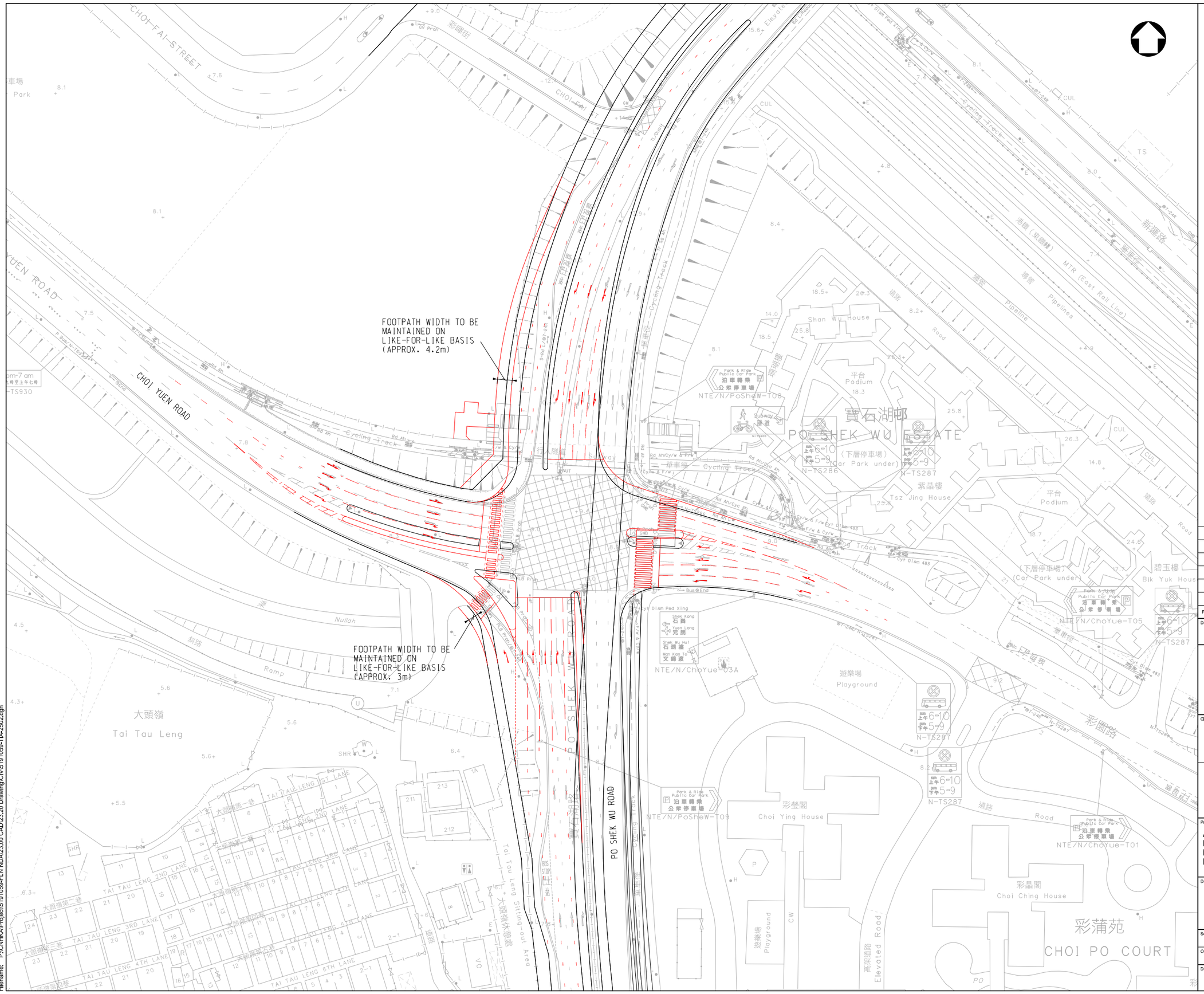
User name: YEUN7000 Date:21/7/2022 Time: 18:35:39
Filename: P:\CNHKA\Project\5191059-FLN NDA\23.00 CAD\23.20 Drawing\CIV\5191059-TIA-2415.dgn


CHOI FAI STREET
CHOI YUEN ROAD
FOOTPATH WIDTH TO BE MAINTAINED ON LIKE-FOR-LIKE BASIS (APPROX. 4.2m)
FOOTPATH WIDTH TO BE MAINTAINED ON LIKE-FOR-LIKE BASIS (APPROX. 3m)
PO SHEK WU ROAD
Shan Wu House
寶石湖邨
PO SHEK WU ESTATE
Tsz Jing House
彩晶樓
Choi Ching House
彩蒲苑
CHOI PO COURT
Choi Ying House
彩瑩閣
Bik Yuk House
碧玉樓
Tai Tau Leng
大頭嶺
Tai Tau Leng Sitting-out Area
大頭嶺休憩處
Nullah
Ramp
Cycling Track
Footpath
Road
Pipelines
Playground
遊樂場
Elevated Road
高架道路
MTR (East Rail Line)
港鐵（東鐵綫）
NTE/N/PoShew-T08
NTE/N/PoShew-T09
NTE/N/ChoYue-T01
NTE/N/ChoYue-T05
NTE/N/ChoYue-03A
N-TS286
N-TS287
N-TS930
Park & Ride Public Car Park
泊車轉乘公眾停車場
(Car Park under)
(下層停車場)
Subway
隧道
Bus Stop
Bus Bay
Footbridge
Cyt Dism Ped Xing
Bus 8 End
Shek Kong Tuen Long
石崗 元朗
Shek Wu Hui
石湖墟
Man Kam To
文錦渡
Toilet
SHR
GMB
Park
Footpath
Cycling Track
Rd Ah/Cyc Ah
Cyc & F/w Cyt Diam 483
Cyt Diam 483
Rd Ah/Cyc Ah
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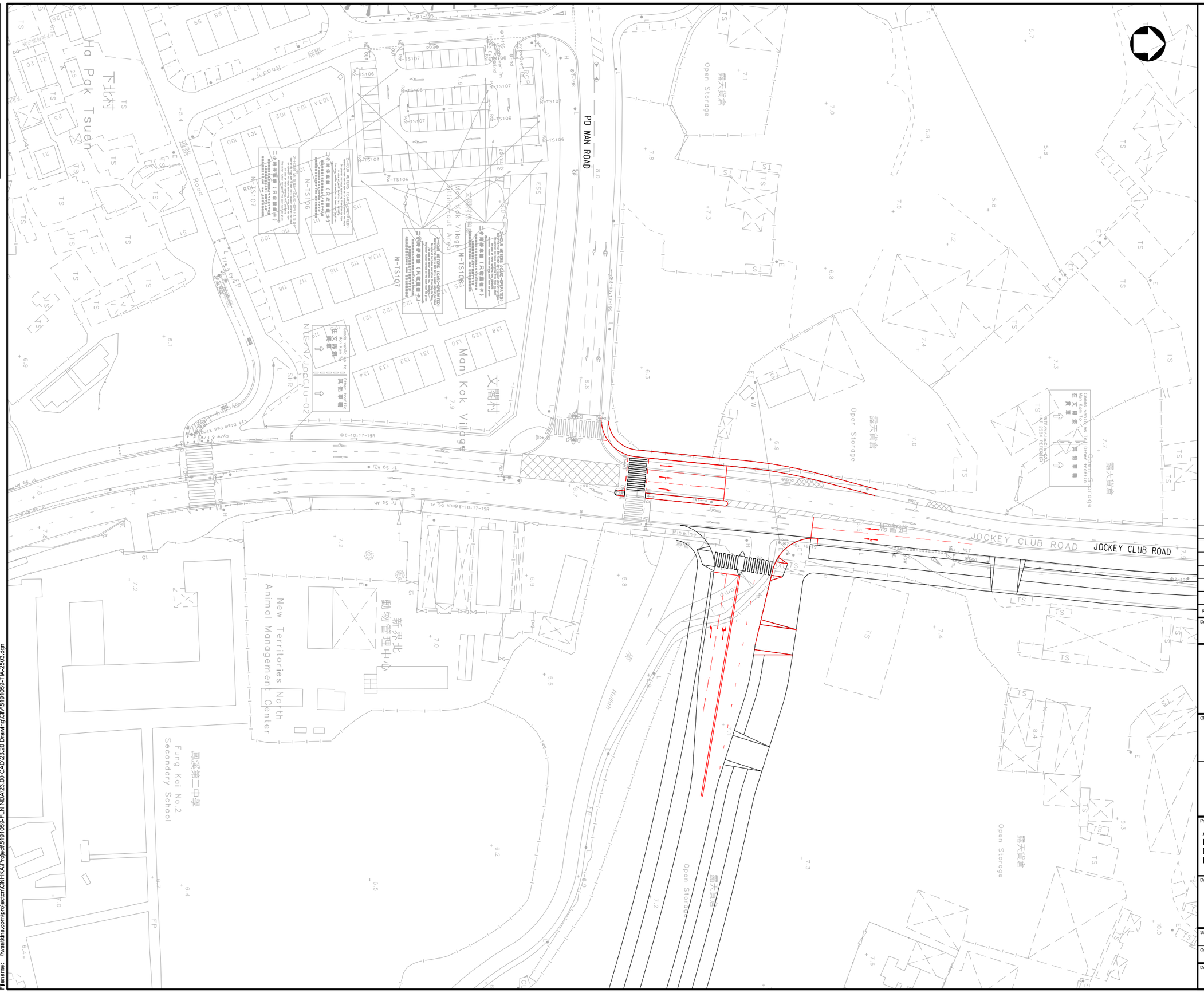
Cyc & F/w



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PROPOSED IMPROVEMENT SCHEME UNDER DESIGN SCENARIO

CONFORMING SCHEME PROPOSED UNDER KTN/FLN NDA ADVANCE WORKS (IMPLEMENTATION IN YEAR 2031)

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	IT	PT	JY
B	DEC 2021	SECOND ISSUED	IT	PT	JY
A	JUN 2021	FIRST ISSUED	IT	PT	JY

Drawing Status

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Civil Engineering and Development Department

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NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME FOR JOCKEY CLUB ROAD / PO WAN ROAD / FLN ROAD L4 (FJ23)

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Original Size	Date	Date	Date	Date
A1	JUN 2021	JUN 2021	JUN 2021	JUN 2021

Drawing Number: 5191059-TIA-2503

Revision: C

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Millimetres 0 10 100

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Millimetres 0 10 100

WIP Dec 2021

WIP Dec 2021

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CONFORMING SCHEME PROPOSED UNDER KTN/NDA ADVANCE WORKS (IMPLEMENTATION IN YEAR 2031)

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	IT	PT	JY
B	DEC 2021	SECOND ISSUED	IT	PT	JY
A	JUN 2021	FIRST ISSUED	IT	PT	JY

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NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME FOR FLN ROAD L3 / FLN ROAD L4 (FJ25)

Scale	Designed	Drawn	Checked	Authorised
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Original Size	Date	Date	Date	Date
A1	DEC 2021	DEC2021	DEC 2021	DEC 2021

Drawing Number: 5191059-TIA-2504

Revision: C

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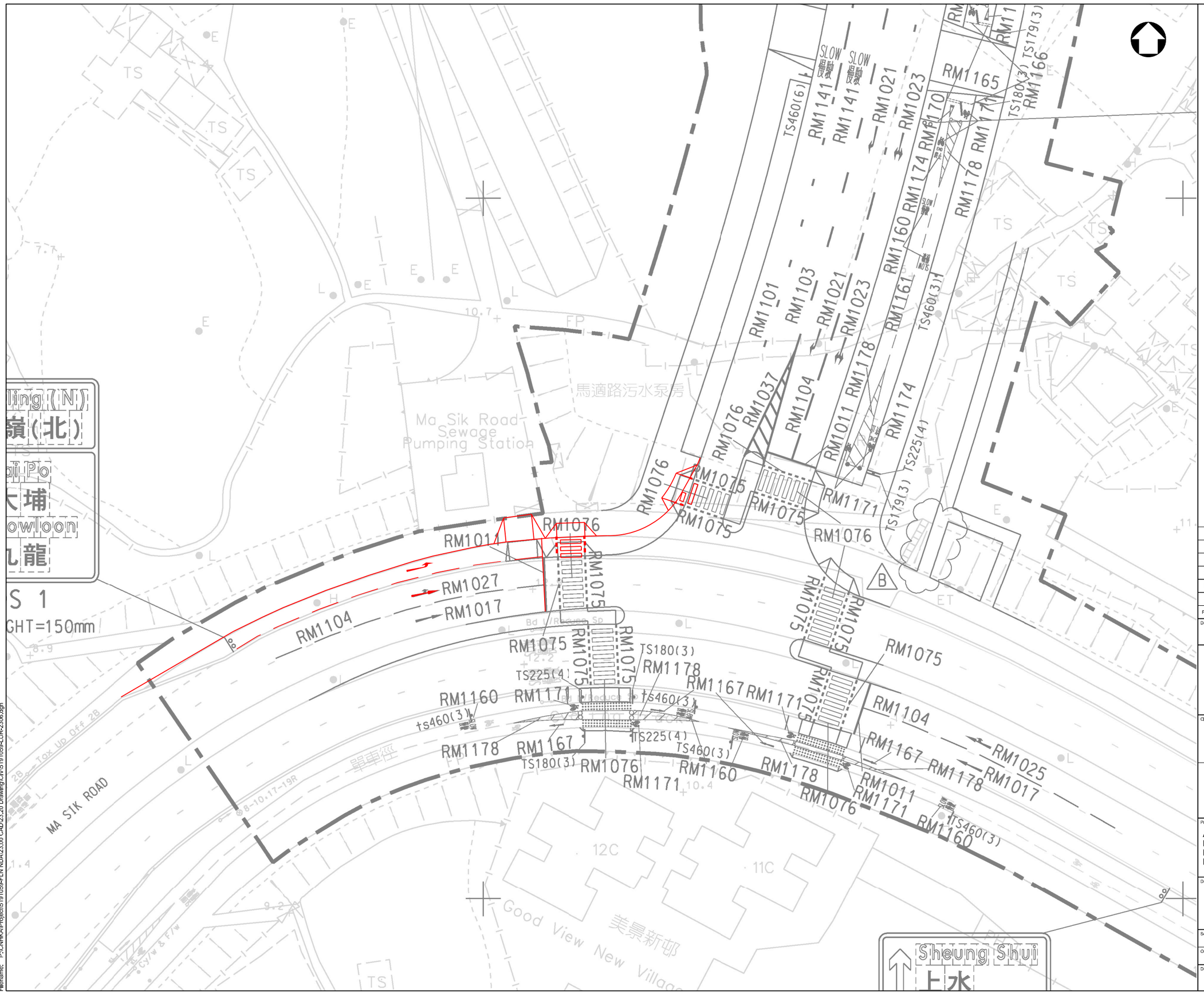

LEGEND:

PROPOSED IMPROVEMENT SCHEME

DETAIL DESIGN SCHEME UNDER FIRST PHASE ASSIGNMENT

Rev.	Date	Description	By	Chk'd	App'd
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B	MAR 2022	SECOND ISSUED	IT	PT	VAR
A	JUN 2020	FIRST ISSUED	IT	PT	JY

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME FOR FJ27

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Original Size	Date	Date	Date	Date
A1	MAR 2022	MAR 2022	MAR 2022	MAR 2022

Drawing Number: 5191059-LUR-2306

Revision: C

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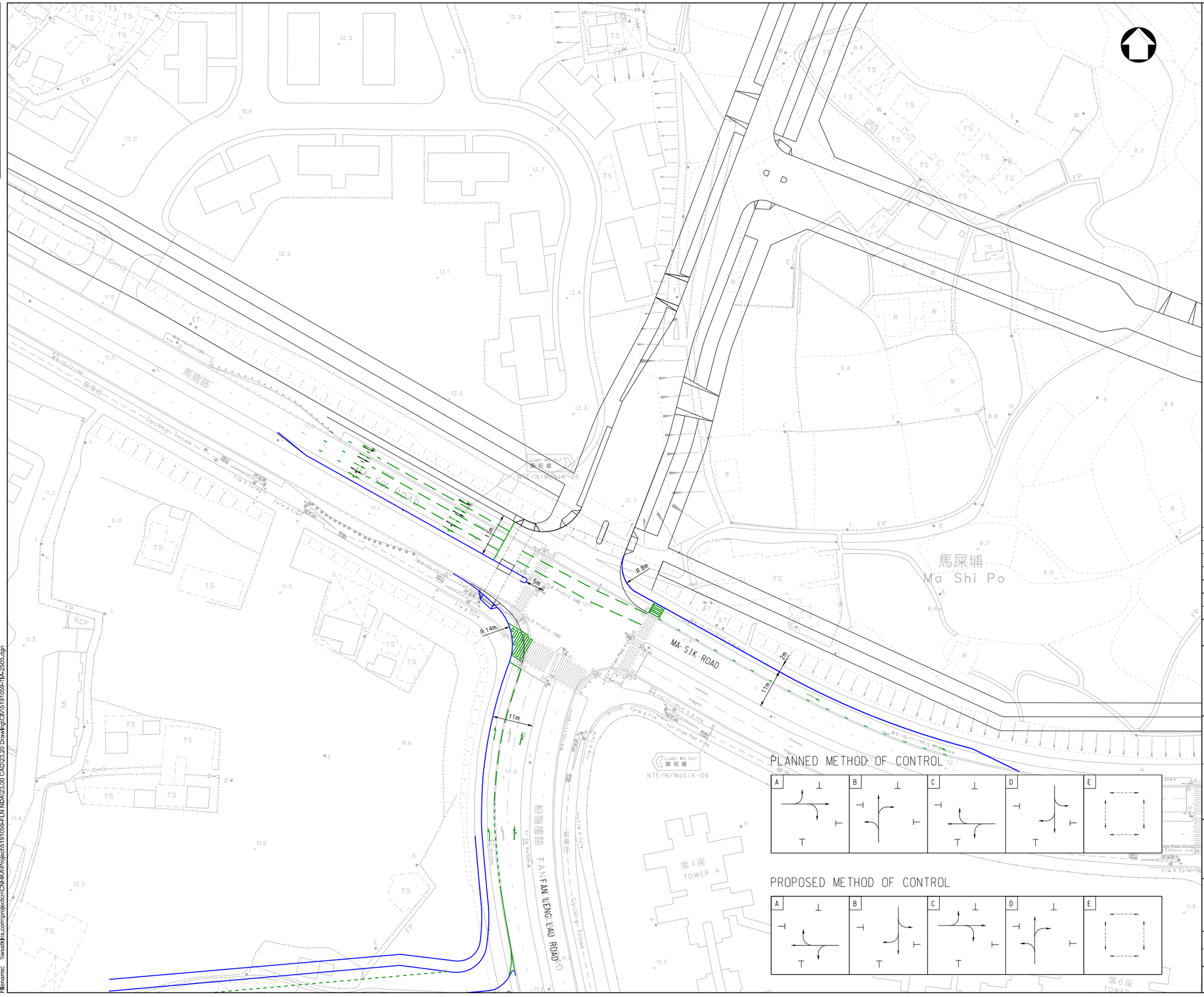

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PLANNED IMPROVEMENT SCHEME BY FALING AREA 17 SITE (IMPLEMENTATION IN YEAR 2031)

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	IT	PT	JY
B	DEC 2021	SECOND ISSUED	IT	PT	JY
A	JUN 2021	FIRST ISSUED	IT	PT	JY

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME FOR FLN ROAD L1 / MA SIK ROAD / FAN LENG LAU ROAD (FJ28)

Scale	Designed	Drawn	Checked	Authorised
1:250	KH	IT	PT	JY
Original Size	Date	Date	Date	Date
A1	JUN 2021	JUN 2021	JUN 2021	JUN 2021

Drawing Number: 5191059-TIA-2505

Revision: C

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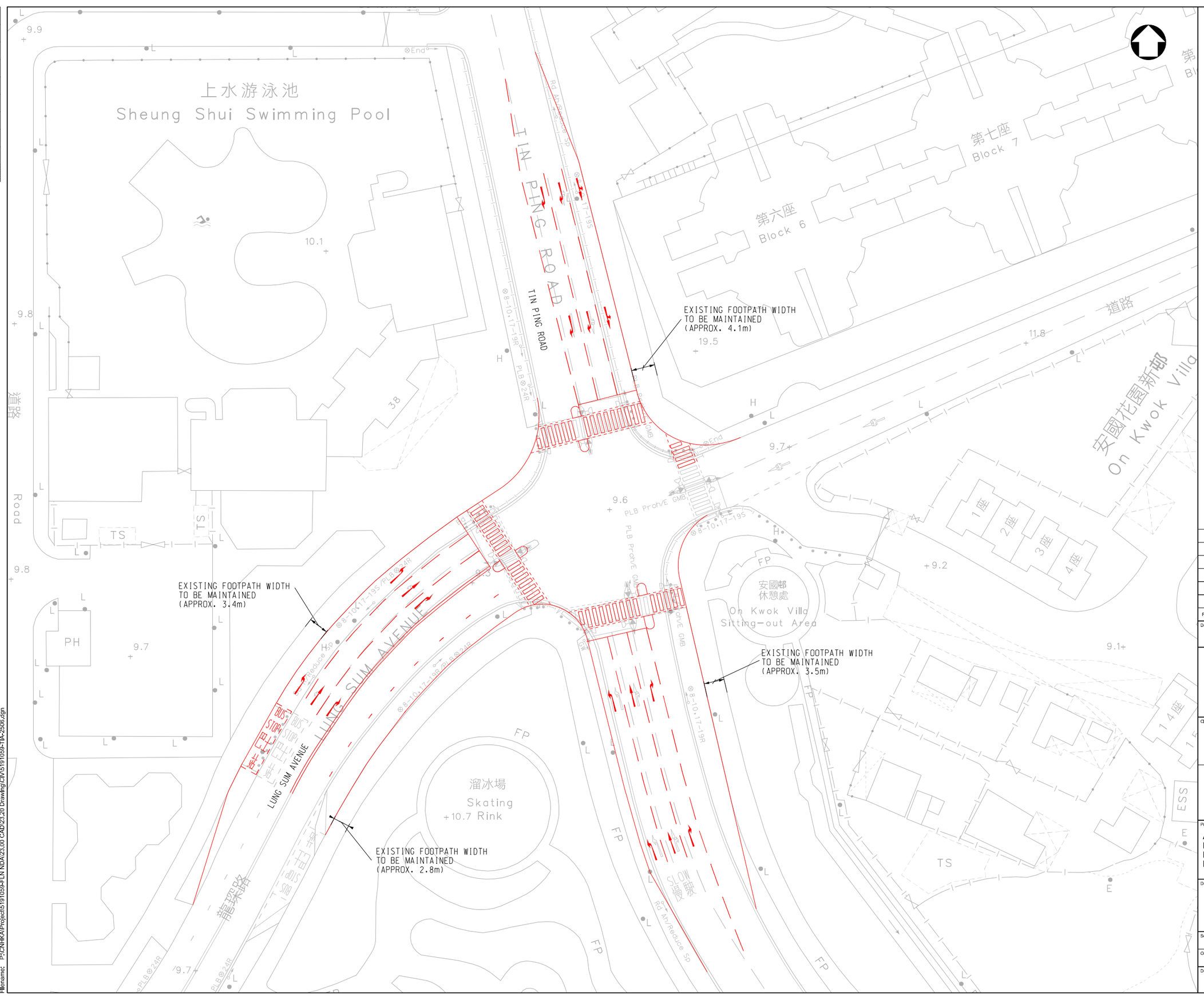

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PROPOSED IMPROVEMENT SCHEME (IMPLEMENTATION IN YEAR 2031)

Rev.	Date	Description	By	Chk'd	App'd
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A	JUN 2021	FIRST ISSUED	IT	PT	JY

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

PROPOSED JUNCTION IMPROVEMENT SCHEME FOR LUNG SUM AVENUE / TING PING ROAD (FJ48)

Scale	Designed	Drawn	Checked	Authorised
1:300	KH	IT	PT	JY
Original Size	Date	Date	Date	Date
A1	JUN 2021	JUN 2021	JUN 2021	JUN 2021

Drawing Number: 5191059-TIA-2506

Revision: B

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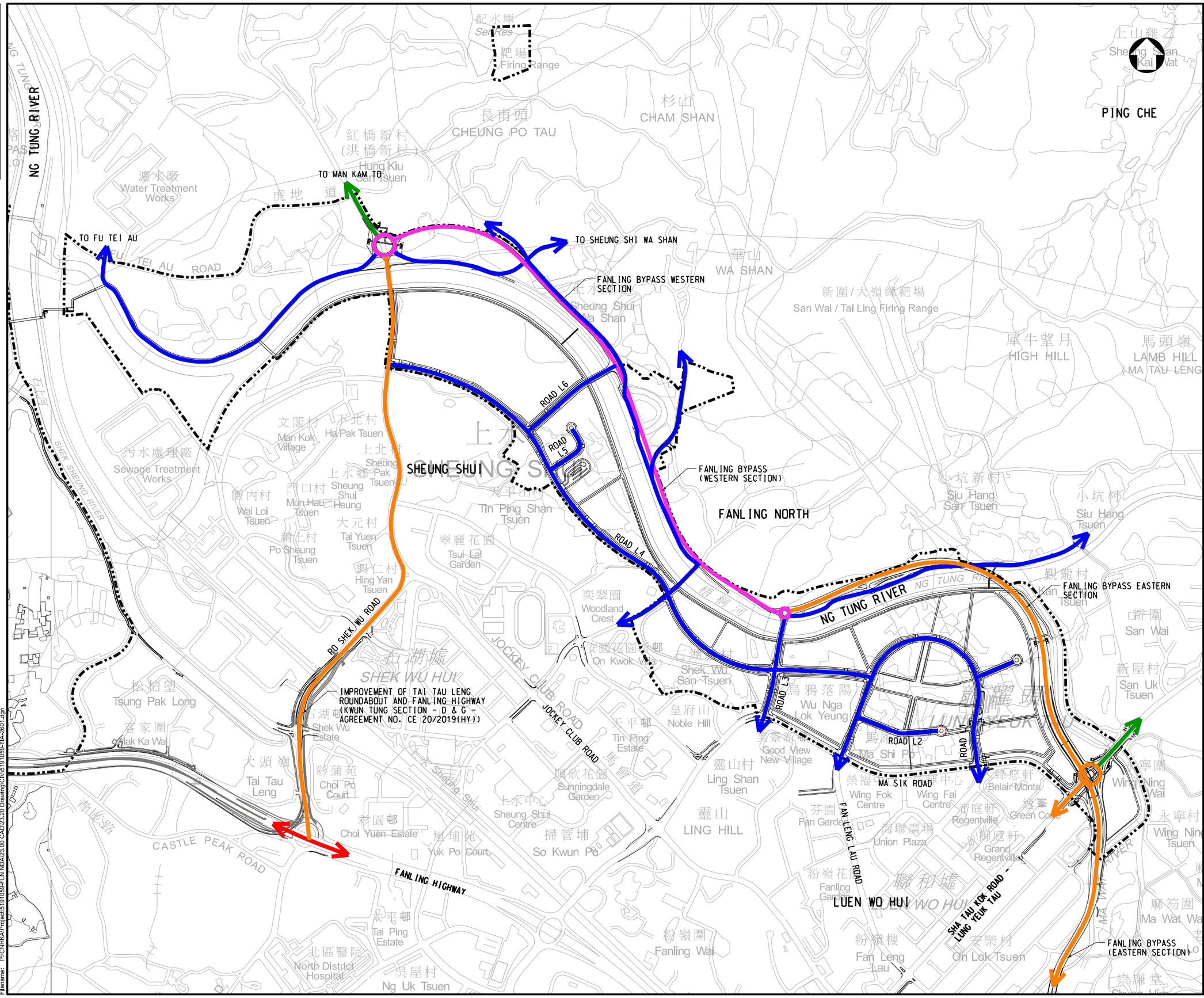

LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- EXPRESSWAY
- PRIMARY DISTRUBUTOR
- DISTRICT DISTRUBUTOR
- LOCAL DISTRUBTOR
- RURAL ROAD

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	MAY 2020	FIRST ISSUED	KLC	PT	JY

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NORTH DEVELOPMENT OFFICE

Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title

ROAD NETWORK AND HIERARCHY IN FANLING NORTH NDA

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	KH	KLC	PT	JY
Original Size	Date	Date	Date	Date
A1	MAY 2020	MAY 2020	MAY 2020	MAY 2020

Drawing Number: 5191059-TIA-2601

Revision: C

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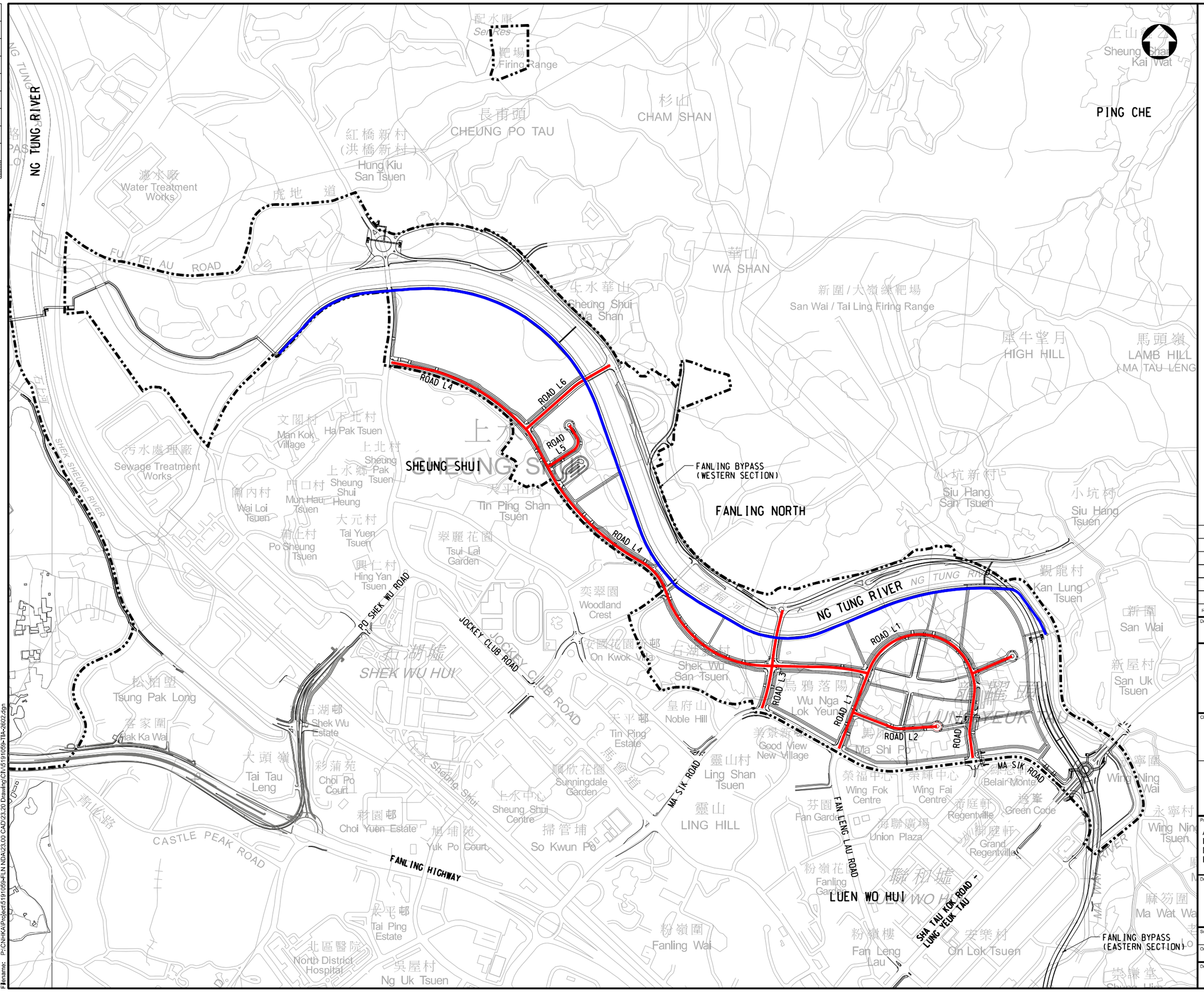

LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- URBAN TYPE
- PROMENADE

Rev.	Date	Description	By	Chk'd	App'd
C	JUL 2022	THIRD ISSUED	KLC	PT	JY
B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	MAY 2020	FIRST ISSUED	KLC	PT	JY

Drawing Status: INVESTIGATION

Suitability: -

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Project Title
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title
STREET TYPES IN FANLING NORTH
NEW DEVELOPMENT AREA

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	KH	KLC	PT	JY
Original Size	Date	Date	Date	Date
A1	MAY 2020	MAY 2020	MAY 2020	MAY 2020

Drawing Number: 5191059-TIA-2602

Revision: C

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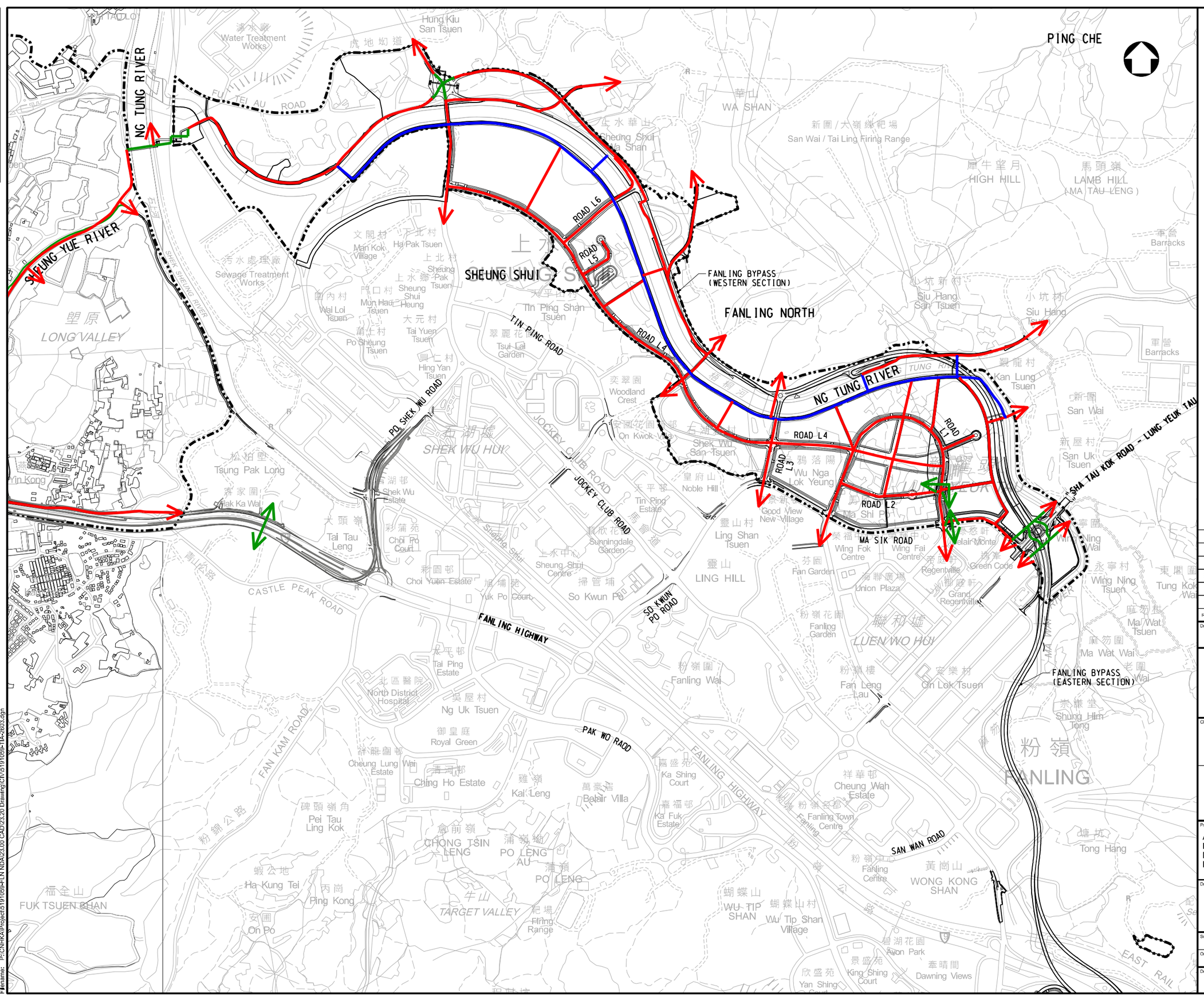

LEGEND:

- BOUNDARY OF NEW DEVELOPMENT AREA
- PROPOSED PEDESTRIAN FOOTPATH
- PROPOSED PEDESTRIAN FOOTBRIDGE
- PROPOSED PEDESTRIAN PROMENADE

Rev.	Date	Description	By	Chk'd	App'd
D	JUL 2022	FORTH ISSUED	KLC	PT	JY
C	DEC 2021	THIRD ISSUED	KLC	PT	JY
B	JUL 2021	SECOND ISSUED	KLC	PT	JY
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Drawing Status: INVESTIGATION

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:
PROPOSED PEDESTRIAN NETWORK
IN FANLING NORTH
NEW DEVELOPMENT AREA

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	KH	KLC	PT	JY
Original Size: A1	Date: MAY 2020	Date: MAY 2020	Date: MAY 2020	Date: MAY 2020

Drawing Number: 5191059-TIA-2603

Revision: D

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User name: CHAN7775 Date:11/8/2022 Time:6:35:55 pm
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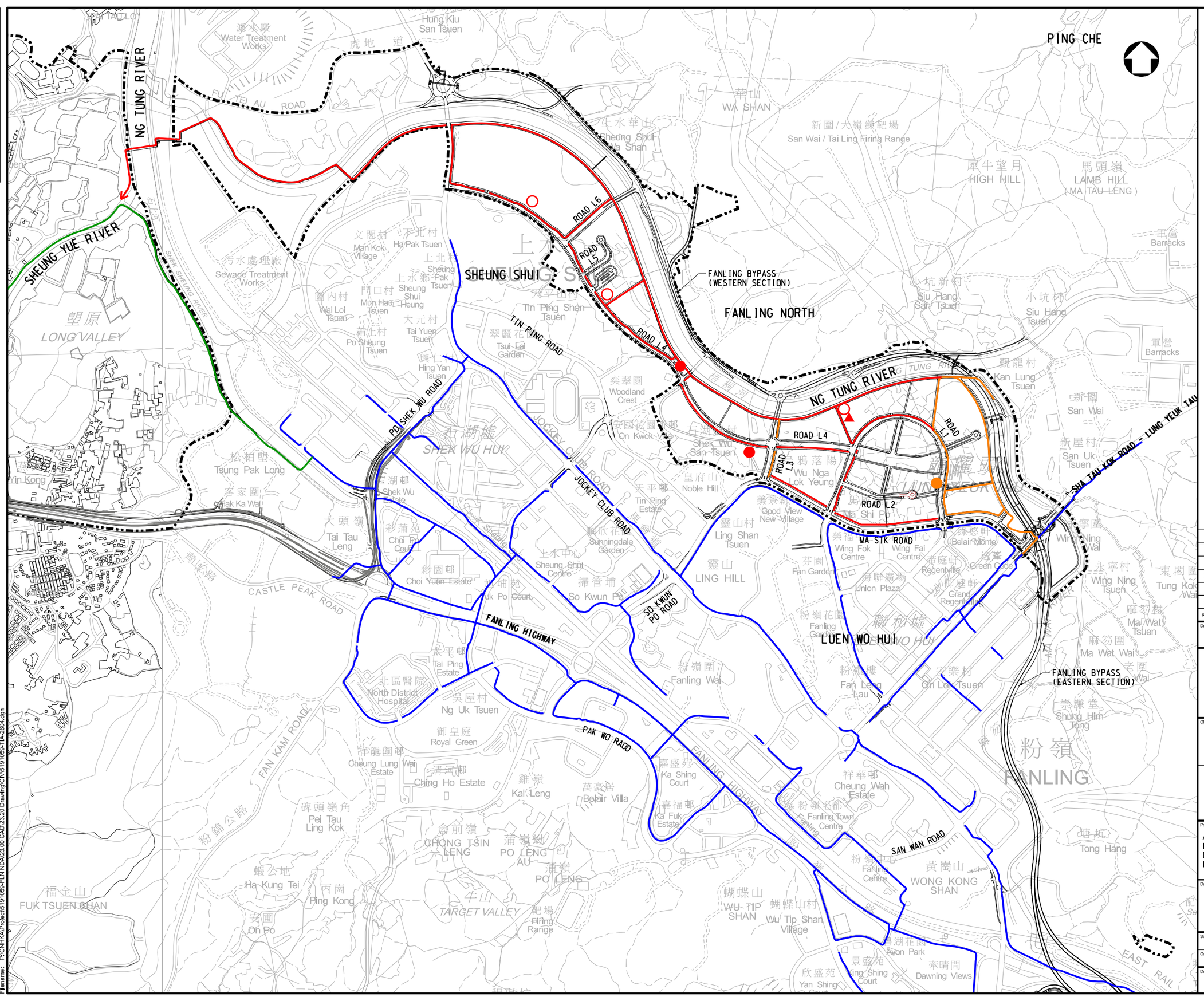

Rev.	Date	Description	By	Chk'd	App'd
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B	DEC 2021	SECOND ISSUED	KLC	PT	JY
A	MAR 2021	FIRST ISSUED	KLC	PT	JY

Drawing Status: INVESTIGATION

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Project Title:

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:

CYCLE TRACK NETWORK
IN FANLING NORTH NDA

Scale	Designed	Drawn	Checked	Authorised
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Original Size: A1	Date: MAR 2021	Date: MAR 2021	Date: MAR 2021	Date: MAR 2021

Drawing Number: 5191059-TIA-2604

Revision: C

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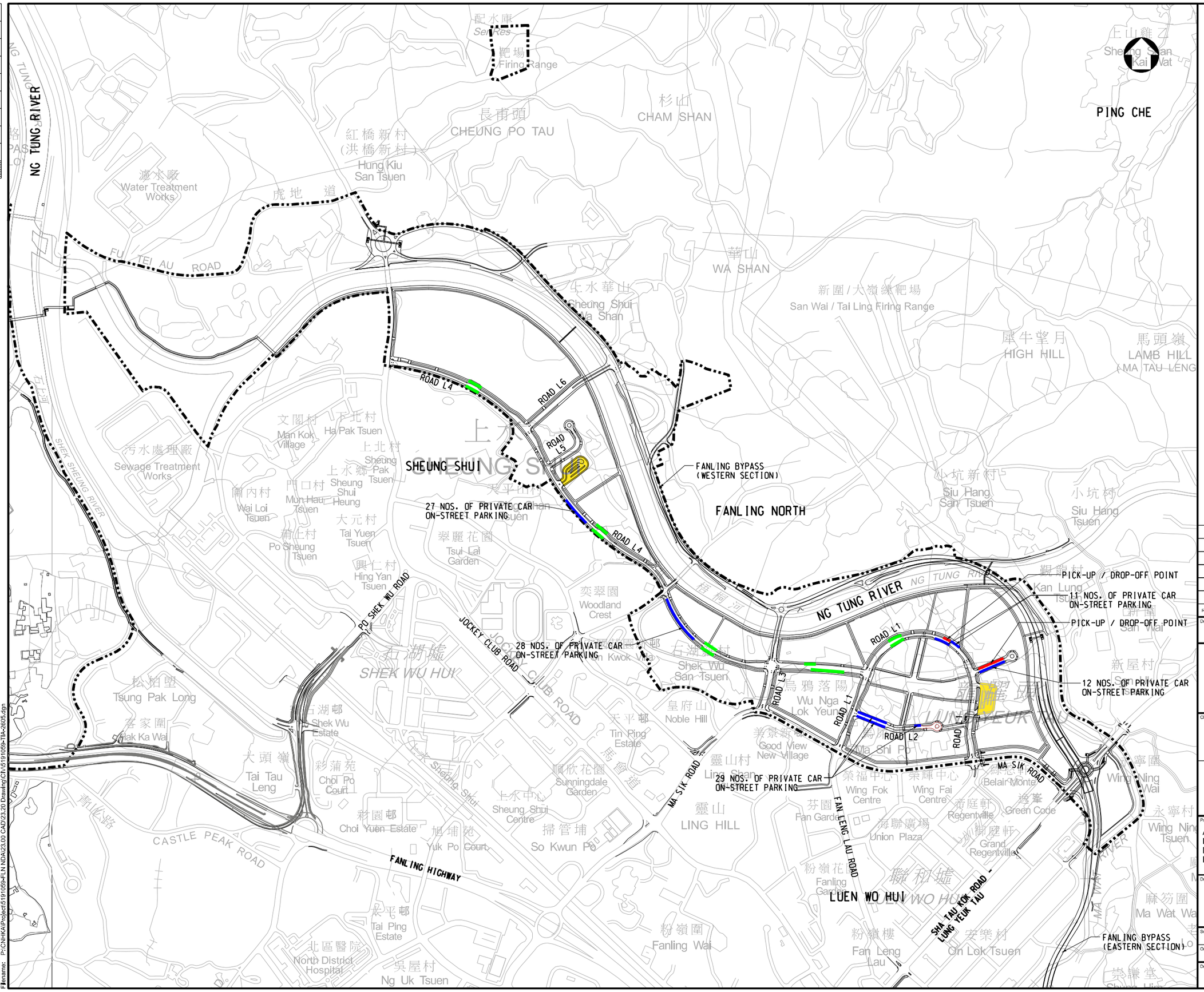
NG TUNG RIVER
FU TEI AU ROAD
ROAD L4
ROAD L6
ROAD L5
SHEUNG SHUI
FANLING BYPASS (WESTERN SECTION)
27 NOS. OF PRIVATE CAR ON-STREET PARKING
FANLING NORTH
PING CHE
PICK-UP / DROP-OFF POINT
11 NOS. OF PRIVATE CAR ON-STREET PARKING
PICK-UP / DROP-OFF POINT
12 NOS. OF PRIVATE CAR ON-STREET PARKING
ROAD L1
ROAD L2
ROAD L3
PO SHEK WU ROAD
JOCKEY CLUB ROAD
28 NOS. OF PRIVATE CAR ON-STREET PARKING
29 NOS. OF PRIVATE CAR ON-STREET PARKING
MA SIK ROAD
FAN LENG LAU ROAD
SHA TAU KOK ROAD - LUNG TEUK TAU
FANLING HIGHWAY
CASTLE PEAK ROAD
LUEN WO HUI
FANLING BYPASS (EASTERN SECTION)
SHEK WU HUI
LING HILL
CHEUNG PO TAU
CHAM SHAN
WA SHAN
HIGH HILL
LAMB HILL (MA TAU LENG)
San Wai / Tai Ling Firing Range
Firing Range
Water Treatment Works
Sewage Treatment Works
Hung Kiu San Tsuen
Sheung Shui Wa Shan
Man Kok Village
Ha Pak Tsuen
Sheung Pak Tsuen
Mun Hau Tsuen
Wai Loi Tsuen
Tai Yuen Tsuen
Po Sheung Tsuen
Hing Yan Tsuen
Tsui Lai Garden
Woodland Crest
Kwok Wa
Shek Wu San Tsuen
Noble Hill
Tin Ping Estate
Sunningdale Garden
Sheung Shui Centre
Yuk Po Court
So Kwun Po
Choi Yuen Estate
Choi Po Court
Shek Wu Estate
Tsung Pak Long
Tai Tau Leng
Tai Ping Estate
North District Hospital
Ng Uk Tsuen
Fanling Wai
Fan Leng Lau
On Lok Tsuen
Ma Shi Po
Good View New Village
Ling Shan
Wing Fai Centre
Wing Fok Centre
Fan Garden
Union Plaza
Regentville
Grand Regentville
Belair Monte
Green Code
Wing Ning Wai
Ma Wat Wa
Siu Hang San Tsuen
Siu Hang Tsuen
Kan Lung Tsuen
San Wai
Lok Yeung
Wu Nga
Fanling Garden
Ha Pak Tsuen
Sheung Pak Tsuen
Mun Hau Tsuen
Tai Yuen Tsuen
Po Sheung Tsuen
Hing Yan Tsuen
Choi Yuen Estate
Choi Po Court
Yuk Po Court
Shek Wu Estate
Tsung Pak Long
Tai Tau Leng
Tai Ping Estate
Ng Uk Tsuen
Fanling Wai
Fan Leng Lau
On Lok Tsuen
Ma Shi Po
Wing Ning Wai
Ma Wat Wa

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3. Estimation of Sewage Flow.....2
4. Review of Existing Sewerage System in FLN NDA 2
5. Proposed Sewerage Works.....2
6. Summary.....2

FIGURES

5191059-SIA-2001 Proposed Sewerage Layout Plan (Sheet 1)
5191059-SIA-2002 Proposed Sewerage Layout Plan (Sheet 2)

1. INTRODUCTION

1.1.1 This section describes the assessment of the impact on the sewerage system induced by proposed minor relaxation of planning parameters for planned public and private housing sites and the rezoning of Site 4-6 and Site B2-7 in FLN NDA.:

- Estimating sewage flow and designing the sewerage network for the proposed development;
- Assessing impact to the existing sewerage conveyance system and sewage treatment works of the flow generated from the proposed development; and
- Proposing sewerage improvement works, if required.

2. POPULATION AND EMPLOYMENT DATA

2.1.1 According to the SIA report of Development of Fanling North New Development Area, Remaining Phase – Design and Construction, sewage from FLN NDA would be conveyed to Shek Wu Hui Sewage Treatment Works (SWHSTW). The sewerage layout in FLN NDA are shown in **Figures 5191059-SIA-2001** and **2002**.

2.1.2 The proposed relaxation in planning parameters for the planned public and private housing sites in FLN NDA would not change the proposed sewerage catchment. Review and discussion are provided in later section of this report.

3. ESTIMATION OF SEWAGE FLOW

3.1.1 The total ADWF generated from First Phase development and full development of FLN NDA is originally estimated to be 4,156 m3/day and 19,350 m3/day respectively, as presented in the last s.16 application in 2018.

3.1.2 Considering the latest population as presented in this report, the total ADWF generated from First Phase development and full development of FLN NDA is estimated to be 4,427 m3/day and 24,869 m3/day respectively, according to latest available data obtained from relevant parties.

4. REVIEW OF EXISTING SEWERAGE SYSTEM IN FLN NDA

Existing Yip Cheong Street Sewage Pumping Station (YCSSPS)

4.1.1 After the completion of full development of FLN NDA, all sewage generated within the NDA will be conveyed to Shek Wu Hui Sewage Treatment Works via the proposed sewerage network without utilising the existing sewerage network. Therefore, no impact will be induced to YCSSPS due to discharge of sewage generated from FLN NDA.

Shek Wu Hui Sewage Treatment Works (SWHSTW)

4.1.2 Sewage generated from Fanling and Sheung Shui, and some from Tai Po (Kau Lung Hang area) are currently collected and conveyed to SWHSTW for treatment and then disposal to Deep Bay area.

4.1.3 EPD is planning for phased expansion of the existing SWHSTW to increase the treatment capacity up to 190,000 m^3/day, and to upgrade the sewage treatment level to tertiary standard for conversion into a “Shek Wu Hui Effluent Polishing Plant (“SWHEPP”)”.

4.1.4 It has been advised by EPD that the planned upgrades of SWHSTW will timely provide sufficient capacity in phase with the Territorial Population and Employment Data Matrix (TPEDM) forecasted population to accommodate all existing and planned developments within its catchment, including the latest population of FLN NDA.

4.1.5 In view of above, FLN NDA would not overload the treatment capacity of SWHSTW reserved for the NDA after population intake in both 2023 (First Phase) and 2031 (full development).

5. PROPOSED SEWERAGE WORKS

5.1.1 Sewerage scheme has been reviewed with some updated information incorporated (i.e. latest population and flow data).

5.1.2 The proposed sewerage network in FLN NDA is shown in **Figures SIA-2001** and **SIA-2002**.

5.1.3 Sewage from full development of FLN NDA would be conveyed to SWHSTW via gravity sewers, proposed Sewage Pumping Stations (SPSs) and their associated twin sewage rising mains in FLN NDA. Fanling North Temporary Sewage Pumping Station (FLNSPS), located at Site D2-14 within the FLN NDA, near the junction of Sha Tau Kok Road and Ma Sik Road, would be decommissioned after the commission of sewerage system under the Remaining Phase development.

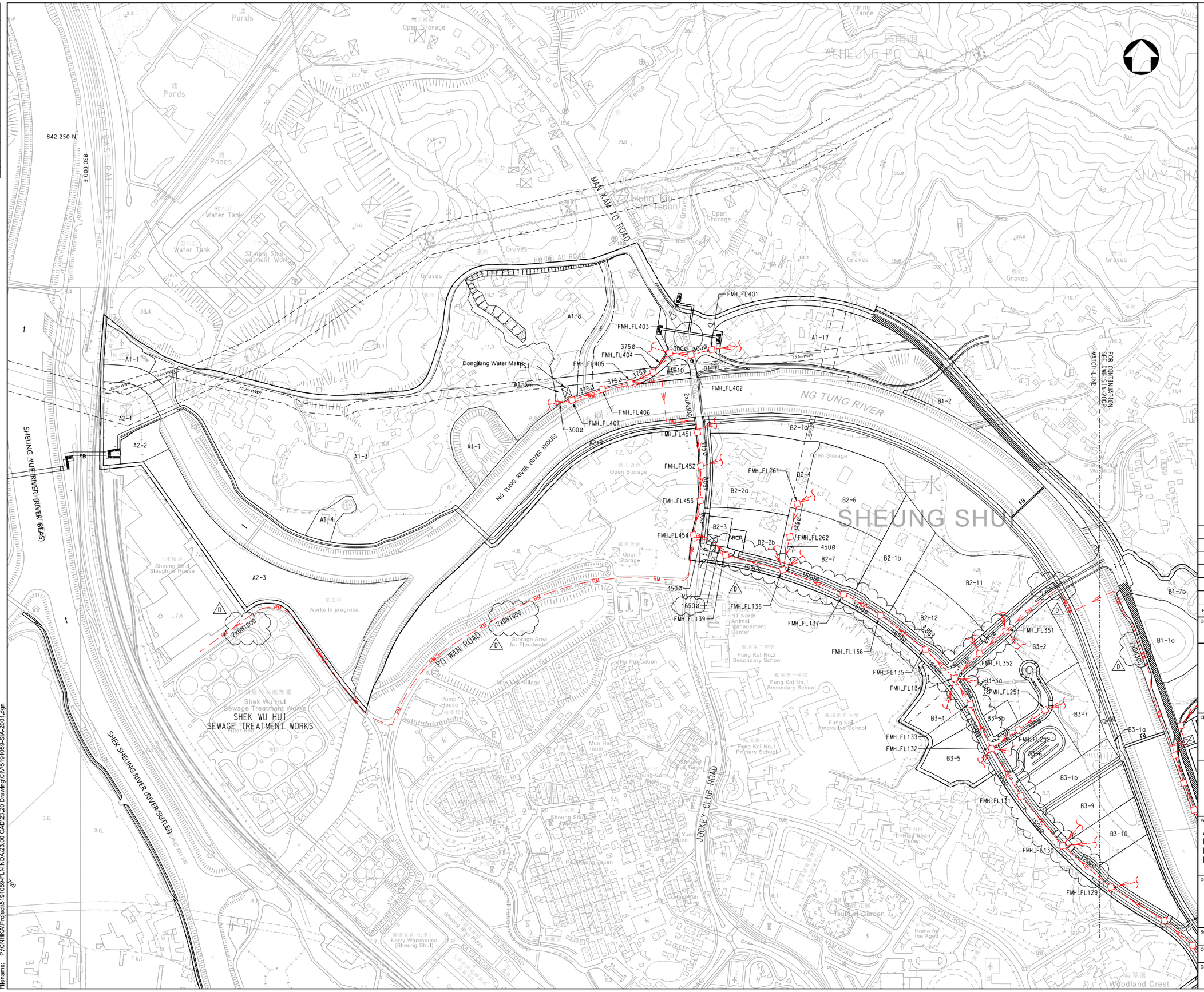
5.1.4 Four permanent SPSs would be constructed under the Remaining Phase development to convey sewage generated in FLN NDA to SWHSTW due to topographic constraints.

5.1.5 The estimated projected peak flows fall within design capacity of the pumping stations and SWHSTW and therefore no adverse sewerage impact will be induced due to increase in population of upstream catchment.

6. SUMMARY

6.1.1 Based on the assessment under this report, no adverse sewerage impact will be induced to SWHSTW for the increased population at the planned public and private housing sites.

FIGURES



NOTE:

1. THE LEAD IN LOCATIONS, LEVELS AND SIZE OF DISCHARGE PIPE FOR HOUSING SITE ARE INDICATIVE ONLY AND SHALL BE FURTHER REVIEWED TO SUIT THE HOUSING DEVELOPMENT.

LEGEND:

- DEVELOPMENT BOUNDARY
- B2-11 — SUB-ZONE BOUNDARY WITH ID
- SEWERAGE MANHOLE
- SEWERAGE PUMPING STATION
- SEWER
- RM — RISING MAIN
- FMH_FL137 — MANHOLE ID
- SEWER UNDER PHASE 1
- RM — RISING MAIN UNDER PHASE 1

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Checked date: _____

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D	NOV 2021	FOURTH ISSUED	KLC	XJY	WKML
C	JUN 2021	THIRD ISSUED	KLC	XJY	WKML
B	AUG 2020	SECOND ISSUED	KLC	XJY	WKML
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AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title
PROPOSED SEWERAGE LAYOUT PLAN (SHEET 1)

Scale	Designed	Drawn	Checked	Authorised
1:3000	AKY	KLC	XJY	WKML
Original Size: A1	Date: MAY 2020	Date: MAY 2020	Date: MAY 2020	Date: MAY 2020

Drawing Number: 5191059-SIA-2001
Revision: E

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Filename: P:\CNHK\Projects\5191\059-FLN NDA\23.00 CAD\23.20 Drawing\CIV\5191059-SIA-2001.dgn

NOTE:

1. THE LEAD IN LOCATIONS, LEVELS AND SIZE OF DISCHARGE PIPE FOR HOUSING SITE ARE INDICATIVE ONLY AND SHALL BE FURTHER REVIEWED TO SUIT THE HOUSING DEVELOPMENT.

LEGEND:

- DEVELOPMENT BOUNDARY
- B2-11 — SUB-ZONE BOUNDARY WITH ID
- SEWERAGE MANHOLE
- SEWERAGE PUMPING STATION
- SEWER
- RM — RISING MAIN
- FMH_FL137 — MANHOLE ID
- SEWER UNDER PHASE 1
- RM — RISING MAIN UNDER PHASE 1

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22/7/2022
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Checked date: _____

Rev.	Date	Description	By	Chk'd	App'd
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D	NOV 2021	FOURTH ISSUED	KLC	XJY	WKML
C	JUN 2021	THIRD ISSUED	KLC	XJY	WKML
B	AUG 2020	SECOND ISSUED	KLC	XJY	WKML
A	MAY 2020	FIRST ISSUED	KLC	XJY	WKML

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NORTH DEVELOPMENT OFFICE

Project Title
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title
PROPOSED SEWERAGE LAYOUT PLAN
(SHEET 2)

Scale	Designed	Drawn	Checked	Authorised
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Original Size	Date	Date	Date	Date
A1	MAY 2020	MAY 2020	MAY 2020	MAY 2020

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Revision: E

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Figure 4.2 Proposed Flushing Water Distribution Network in FLN NDA

1. INTRODUCTION

1.1.1 This section aims to assess the impact to fresh and flushing water supply including reservoir, water pumping station and water mains arising from the proposed minor relaxation of planning parameters for planned public and private housing sites and the rezoning of Site 4-6 and Site B2-7 in FLN NDA..

2. APPROACH AND METHODOLOGY

2.1.1 This report adopts the approach and methodology employed in the WSIA report of Development of Fanling North New Development Area, Remaining Phase – Design and Construction.

2.1.2 The proposed demand rates and peaking factors are based on the values defined in the WSD's Departmental Instruction (DI) No. 1309. Where relevant rates are not available, assumption based on past records for similar user types will be adopted.

3. ESTIMATED POPULATION AFTER RELAXATION OF PLANNING PARAMETERS

3.1.1 The planned population after relaxation of planning parameters at the planned public and private housing sites are summarized below:

Table 3.1. Planned Population and Employment (After relaxation of planning parameters)

	Total Population with updated Assumption	
	FLN NDA	
	Residential (Population)	Commercial (Employment)
Existing Population in Non – Development Area	224	-
First Phase (2023)	17,543	1,090
Remaining Phase (2031)	77,314	13,200
Full Development	**95,081**	**14,290**

4. TOTAL WATER DEMAND ESTIMATION

4.1.1 The freshwater and flushing water average daily water demand of each development lot and existing population were estimated by multiplying the projected residential and commercial populations of the development lot by a unit demand factor. This unit demand factor is specific to the land use type of the development lot, it is either extracted from WSD's DI No. 1309 or recommended by WSD.

4.1.2 The irrigation demand in FLN NDA is based on the previous North East New Territories (NENT) NDA Study.

4.1.3 The proposed freshwater demand (i.e. potable water) generated from the FLN NDA First Phase should be catered by existing freshwater network in Fanling while the freshwater demand (i.e. potable water) generated from the FLN NDA full development should be catered by the proposed FLN Freshwater Service Reservoir.

4.1.4 The proposed flushing water demand and irrigation water demand generated from the FLN NDA First Phase should be catered by existing Temporary Main for Flushing (TMF) network in Fanling (i.e. existing TMF along Ma Sik Road). As advised by WSD, the conversion from TMF to Reclaimed Water (RW) main in Fanling area would likely be completed later than the completion of FLN NDA First Phase but earlier than the completion of FLN NDA full development. As such, appropriate arrangement should be installed in the proposed flushing water distribution network (i.e. for flushing and irrigation) of FLN NDA First Phase to facilitate WSD's future switching from TMF to RW.

4.1.5 The flushing water demand generated from FLN NDA full development should be catered by the proposed FLN Flushing Water Service Reservoir (FLWSR).

4.1.6 The proposed irrigation water demand generated from FLN NDA full development was originally proposed to be catered by FLN FLWSR. However, dyed reclaimed water stored in FLN FLWSR cannot be used for landscape irrigation purpose. Therefore, use of undyed reclaimed water for landscape irrigation will be by means of wagons/haulers, subject to the agreement with LCSD.

4.1.7 Water demands generated from FLN NDA under various phases after proposed relaxation of planning parameters are tabulated in **Table 4.1** and **Table 4.2**.

Table 4.1 Water demand – FLN NDA First Phase

Potable	Flushing		Irrigation		Ex. FW network	Ex. TMF network
FW (m^3/day)	TMF (FW) (m^3/day)	Other than TMF (m^3/day)	TMF (FW) (m^3/day)	Other than TMF (m^3/day)	Total Freshwater (m^3/day)	Total Flushing + Irrigation (m^3/day)
2,996	**2,042**	**-**	**282**	**-**	**2,996**	**2,324**

Table 4.2 Water demand – FLN NDA Full Development (After relaxation of planning parameters)

Potable	Flushing		Irrigation		From FLN FWSR	Ex. TMF network	From FLN FLWSR
FW (m^3/day)	TMF (FW) (m^3/day)	Other than TMF (m^3/day)	TMF (FW) (m^3/day)	Other than TMF (m^3/day)	Total Freshwater (m^3/day)	Total Flushing (m^3/day)	Total Flushing[2] (m^3/day)
20,106 [15,222][1]	**-**	**8,054 [8,738][1]**	**-**	**1,660 [1,509][1]**	**20,106 [15,222][1]**	**-**	**8,054 [10,247][1]**

Note:
[1] Figures in bracket [ ] are the original demand presented in the last s.16 application in 2018.
[2] The use of undyed reclaimed water for landscape irrigation will be by means of wagons/haulers, subject to the agreement with LCSD.

5. WATER SUPPLY IMPACT ASSESSMENT FOR FANLING NORTH NEW DEVELOPMENT AREA

5.1 Proposed Water Supply Distribution Network After Relaxation of Planning Parameters

5.1.1 Water demands generated from increased total population in FLN NDA and corresponding impact are described below:

Proposed Freshwater Supply Distribution Network under FLN NDA Full Development

5.1.2 Based on hydraulic model checking result, the increased water demand will slightly affect the pipe size of the proposed freshwater supply distribution network serving original population of full development of FLN NDA. The revised network is presented in **Figure 4.1**.

Proposed Flushing water Supply Distribution Network under FLN NDA Full Development

5.1.3 Based on hydraulic model checking result, the increased water demand will slightly affect the pipe size of the proposed flushing water supply distribution network serving original population of full development of FLN NDA. The revised network is presented in **Figure 4.2**.

5.2 Hydraulic Performance of Proposed Water Supply Network after relaxation of Planning Parameters

5.2.1 Hydraulic performance of the proposed water supply distribution networks due to the total increased water demand is assessed.

5.2.2 Hydraulic performance of the proposed freshwater supply distribution network, at each developmental phase, is checked under (1) normal demand scenario with peak flow condition and (2) firefighting scenario. Under firefighting scenario, freshwater demand of 6,000 m^3/day is added.

Freshwater supply distribution network at (1) normal demand scenario with peak flow condition

5.2.3 The total freshwater demand under FLN NDA First Phase is estimated to be 2,996 m^3/day while the total freshwater demand under FLN NDA full development is estimated to be 20,106 m^3/day.

Freshwater supply distribution network at (2) firefighting scenario

5.2.4 Hydraulic model checking result shows that the residual heads at all supply nodes can meet WSD's minimum residual head required (i.e. 17 m) under both FLN NDA First Phase and FLN NDA full development.

Flushing water distribution networks at normal demand scenario with peak flow condition

5.2.5 The total flushing water demand and irrigation demand (using TMF) under FLN NDA First Phase is estimated to be 2,324 m^3/day while the total flushing water demand under FLN NDA full development is estimated to be 8,054 m^3/day.

5.2.6 Hydraulic model checking result shows that the residual heads at all supply nodes can meet WSD's minimum residual head required (i.e. 15 m) under both and FLN NDA First Phase and FLN NDA full development.

5.3 Proposed FLN Freshwater Service Reservoir (FWSR) and FLN Flushing Water Service Reservoir (FLWSR)

5.3.1 The capacities and sizes of the proposed FLN FWSR and FLN FLWSR are re-assessed in order to incorporate the following requirements:

(1) revised water demands (generated from increased population) under FLN NDA full development;

(2) others developments fall within the supply area of FLN FWSR

(3) latest design restriction and design approach, as advised by WSD.

Proposed FLN Freshwater Service Reservoir (FWSR)

5.3.2 For information purposes, the previous proposed FLN FWSR (under the previous NENT NDA Study and FLN NDA First Phase development Design and Construction) was proposed to cater for a total freshwater demand of 46,490 m^3/day which comprise of (1) freshwater demand of 15,222 m^3/day generated from the population and (2) freshwater demand of 31,268 m^3/day generated from other adjacent supply zones. The capacity of the proposed FLN FWSR was 36,500 m^3 with dimensions 100 m (L) x 75 m (W). Hence the calculated water depth is approximate 4.9m (D). The founding level of the proposed FLN FWSR was proposed at +90 mPD and the top level was proposed to be +97.2 mPD. The proposed location of the FLN FWSR is at a site near to the existing Table Hill FWSR.

5.3.3 Refer to **Table 4.2**, the daily average freshwater demand is projected as 20,106 m^3/day, corresponding to a required capacity of about 20,309 m^3. With the presence of other developments, the proposed dimensions of FLN FWSR is 102 m x 73 m, and the estimated water depth will be increased to 9 m as agreed with WSD.

Proposed FLN Flushing Water Service Reservoir (FLWSR)

5.3.4 For information purposes, the previous proposed FLN FLWSR (under the previous FLN NDA First Phase development Design and Construction) was proposed to have capacity of 6,650 m^3 with dimensions 50m (L) x 35m (W). Hence the calculated water depth was approximately 3.8m (D). The founding level of the proposed FLN FLWSR was proposed at +56mPD and the top level was proposed to be +62.5mPD. The balancing tank design approach was recommended to be adopted for designing the proposed FLN FLWSR. Flushing water would be directly pumped to supply zones while excess flushing water will be stored in the proposed FLN FLWSR which was proposed to be located at Tong Hang. Subsequently, the proposed FLN FLWSR was relocated to Table Hill, closer to the FLN NDA, based on energy efficiency point of view and reducing the length of new water mains to be laid.

5.3.5 Refer to **Table 4.2**, the daily average flushing water demand is projected as 8,054 m^3/day, corresponding to a required capacity of about 6,397 m^3. With the presence of other developments, the proposed dimensions of FLN FLWSR 50 m x 37 m, and the estimated

water depth will be increased to 5.4 m as agreed with WSD.

6. SUMMARY AND RECOMMENDATION

6.1 FLN NDA Full Development

6.1.1 Freshwater demands generated from the FLN NDA full development is planned to be supported by the proposed FLN FWSR. The increased water demand will not affect the pipe size of the proposed potable water supply distribution network before the proposed relaxation of planning parameters under FLN NDA full development, presented in **Figure 4.1**.

6.1.2 Flushing water demands generated from the FLN NDA full development are planned to be supported by the proposed FLN FLWSR. Usage of reclaimed water is recommended. The increased water demand will not affect the pipe size of the proposed flushing water supply distribution network before the proposed relaxation of development restrictions at FLN NDA full development, presented in **Figure 4.2**.

6.2 Proposed FLN FWSR

6.2.1 The capacity of the FWSR according to the requirements/demands listed in paragraph 5.3.1 is estimated to be 52,600 m^3. According to latest design, the FWSR is in irregular shape with approximate dimensions of 102 m x 73 m. The estimated water depth will be increased to 9 m as agreed with WSD.

6.3 Proposed FLN FLWSR

6.3.1 The capacity of the FLWSR according to the requirements/demands listed in paragraph 5.3.1 is estimated to be 9,990 m^3. By adopting the proposed dimensions of 50 m x 37 m, the estimated water depth will be increased to 5.4 m as agreed with WSD.

FIGURES

Millimetres 100 10 0

LEGEND:

- SITE BOUNDARY
- EXISTING FRESH WATER MAINS
- FRESH WATER MAINS UNDER PHASE 1 DEVELOPMENT
- PROPOSED FRESH WATER MAINS

PROPOSED (P)PE BRIDGE FOR WATER MAIN

PROPOSED CONNECTION TO EXISTING FRESH WATER MAINS

PROPOSED CONNECTION TO PHASE 1 FRESH WATER MAINS

CONNECTION TO EXISTING FRESH WATER MAINS UNDER PHASE 1 DEVELOPMENT & PROPOSED CONNECTION TO PHASE 1 FRESH WATER MAINS

CONNECTION TO EXISTING FRESH WATER MAINS UNDER PHASE 1 DEVELOPMENT

CONNECTION TO EXISTING FRESH WATER MAINS UNDER PHASE 1 DEVELOPMENT & PROPOSED CONNECTION TO PHASE 1 FRESH WATER MAINS

SHEUNG SHUI

FANLING NORTH

LUEN WO HUI

NG TUNG RIVER

MTR (EAST RAIL LINE)

Rev.	Date	Description	By	Chk'd	App'd
C	JAN 2022	THIRD ISSUE	KLC	VAR	VAR
B	AUG 2021	CEDD'S COMMENT	KLC	VAR	VAR
A	MAY 2020	FIRST ISSUED	KLC	VAR	VAR

Drawing Status: INVESTIGATION

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Project Title:

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:

PROPOSED FRESH WATER DISTRIBUTION NETWORK IN FLN NDA

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
A1	MAY 2020	MAY 2020	MAY 2020	MAY 2020

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Revision: B

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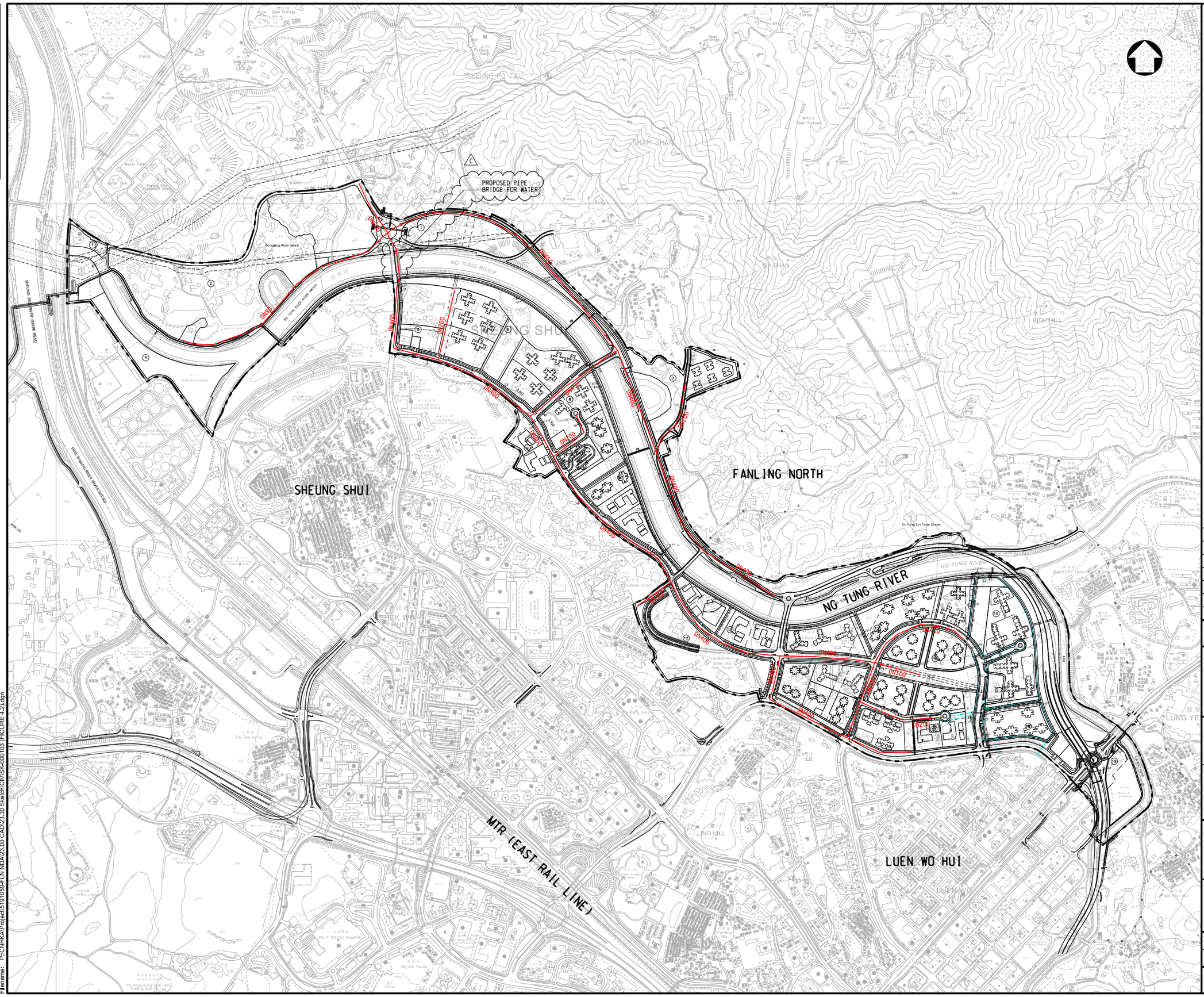

LEGEND:

- SITE BOUNDARY
- FLUSHING WATER MAINS UNDER PHASE 1 DEVELOPMENT
- PROPOSED FLUSHING WATER MAINS

Rev.	Date	Description	By	Chk'd	App'd
C	JAN 2022	THIRD ISSUE	KLC	VAR	VAR
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DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Drawing Title:
PROPOSED FLUSHING WATER DISTRIBUTION NETWORK IN FLN NDA

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N.T.S.	VAR	KLC	VAR	VAR
Original Size	Date	Date	Date	Date
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Drawing Number: FIGURE 4.2

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APPENDIX 6

DRAINAGE IMPACT ASSESSMENT

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3. Assessment of Drainage Impact 2

FIGURES

5191059-DIA-2007 Proposed Drainage Layout Plan (Sheet 1 of 2)

5191059-DIA-2008 Proposed Drainage Layout Plan (Sheet 2 of 2)

1. INTRODUCTION

1.1.1 This section describes the assessment of the impact on the drainage system induced by proposed minor relaxation of planning parameters for planned public and private housing sites and the rezoning of Site 4-6 and Site B2-7 in FLN NDA.

2. EXISTING DRAINAGE SYSTEM WITHIN THE FLN NDA

2.1.1 The existing catchment of the FLN NDA comprises of mainly scattered villages and agricultural land. The FLN NDA is currently served by 2 nos. of existing main existing drain channels, including:

- Ng Tung River
- Ma Wat River

2.1.2 Ng Tung River generally runs in an east to west direction and discharges downstream to River Sutlej (Shek Sheung River) on the west side of the FLN NDA. Northeast of the Shek Wu Hui Sewage Treatment Works, the Ng Tung River has side tributary which is also an engineering channel and discharge to River Sutlej but at a more upstream location. Ma Wat River generally runs in a south to north direction and drains to Ng Tung River. Runoff from the existing areas to be occupied by the future FLN NDA generally drains to the existing urban stormwater drainage system and the tributaries, which ultimately discharges to Ng Tung River.

2.1.3 The catchment layout of FLN NDA full development and the drainage system proposed under CEDD agreement No. CE 18/2019 (CE) are shown on **Figures 5191059-DIA-2007 and 2008.**

3. ASSESSMENT OF DRAINAGE IMPACT

3.1.1 Under the relaxation of planning parameters for the planned public and private housing sites in FLN NDA, the proposed additional population is accommodated mainly by additional floors on the same paved areas. The drainage catchment of paved area and unpaved area remain unchanged before and after the proposed relaxation of planning parameter for the planned public and private housing sites in FLN NDA. As no increased paved area due to additional population, no additional surface runoff and drainage impact are anticipated. For the rezonings, paved area is increased to facilitate the industrial use. No mitigation measures are required within the NDA development due to the increased paved surface runoff.

3.1.2 The relaxation of planning parameters for the planned public and private housing sites in FLN NDA will not change the catchment characteristic, thus the runoff arising from the development will remain the same as that of the existing condition. The hydraulic loading to the drainage system will not be increased. Therefore, no adverse drainage impact is anticipated due to the proposed development.

FIGURES

Millimetres 100 10 0

LEGEND:

- FLN NDA BOUNDARY / KTN NDA BOUNDARY
- EXISTING STORMWATER DRAIN
- STORMWATER MANHOLE
- PROPOSED STORMWATER DRAIN
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER TANK
- WATERWORKS RESERVE
- CATCHMENT UNDER PROPOSED CONDITION
- RUNOFF DIRECTION FROM CATCHMENT

SHEUNG SHUI WA SHAN-1
SHEUNG SHUI WA SHAN-2
SHEUNG SHUI WA SHAN-3
SHEUNG SHUI WA SHAN-4
SHEUNG SHUI WA SHAN-5
SHEUNG SHUI WA SHAN-7
A1-8 A1-10
A1-11 B1-1
B1-2
A2-1 A2-2
A2-3
B2-1a
B2-1b
B2-2 B2-4 B2-5
B2-6
B2-7
B2-11 B2-12
B1-7a B1-7b
B3-1b B3-9
B3-10
B3-12
PROPOSED STORMWATER TANK
INLET
Ramp_A2
Ramp_B1
At Grade_A2
Bridge_A2
Bridge_B1
Trib_02_decking
Tributary_03
TO BE DECKING OVER EXISTING NULLAH
FOR CONTINUATION SEE DWG DIA-2008
MATCH LINE
SHEUNG SHUI
SHEUNG PO TAU
SHAM SHA
NG TUNG RIVER
MAN KAM TO ROAD
PO WAN ROAD
JOCKEY CLUB ROAD
SHEUNG SHUI INTERCHANGE
SHEK WU HUI SEWAGE TREATMENT WORKS
Sheung Shui Treatment Works
Sheung Shui Slaughter House
Kerry Warehouse (Sheung Shui)
Fung Kai No.2 Secondary School
Fung Kai No.1 Secondary School
Fung Kai No.1 Primary School
Fung Kai Innovative School
NT North Animal Management Center
Storage Area for Floodwater
Ha Pak Tsuen
Mun Hau Tsuen
Pak Shek Kok Tsuen
Sheung Shui Tsuen
Tai Yuen Estate
Hillside Tsuen
Sheung Shui Plaza
Home for the Aged
Woodland Crest
Sculptural Garden
TIN PING SHAN TSUEN-1
TIN PING SHAN TSUEN-2
TIN PING SHAN TSUEN-3
Ponds
Water Tank
Open Storage
Graves
Firing Range
Fence

Rev.	Date	Description	By	Chk'd	App'd
A	JUL 2022	SECOND ISSUED	KLC	XJY	WKML
-	DEC 2021	FIRST ISSUED	NP	RSAN	HWL

Drawing Status: DESIGN
Suitability: -

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Drawing Title
PROPOSED DRAINAGE LAYOUT PLAN (SHEET 1 OF 2)

Scale	Designed	Drawn	Checked	Authorised
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Drawing Number: 5191059-DIA-2007
Revision: A

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LEGEND:

- FLN NDA BOUNDARY / KTN NDA BOUNDARY
- EXISTING STORMWATER DRAIN
- STORMWATER MANHOLE
- PROPOSED STORMWATER DRAIN
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER DRAIN UNDER PHASE 1
- PROPOSED STORMWATER DRAIN FROM OTHER DEVELOPMENT
- CATCHMENT UNDER PROPOSED CONDITION
- RUNOFF DIRECTION FROM CATCHMENT

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Drawing Title

PROPOSED DRAINAGE LAYOUT PLAN (SHEET 2 OF 2)

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APPENDIX 7

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ANNEXES

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Annex 3.2 Details of Road Traffic Noise Impacts on NSRs (Residential) in FLN NDA at Year 2046
Annex 3.3 Details of Road Traffic Noise Impacts on NSRs (Social Welfare & Kindergarten) in FLN NDA at Year 2046

1. INTRODUCTION

1.1 Background

1.1.1 Atkins has been commissioned to undertake an Environmental Assessment (EA) to confirm the feasibility of the Revised Developments and Infrastructure of the NDA arising from the review on the land use or development intensity of 3 sites and inclusion of BH intensification planning within the FLN NDA that were not covered in the previous studies.

1.1.2 This EA presents a study of the potential air quality, noise and water quality impact associated with the proposed changes in order to confirm the environmental suitability of the proposed developments.

1.2 Proposed Changes under OZP Amendments

1.2.1 Site 4 is proposed for a multi-storey building (MSB) to be used for Logistics Facilities. This site will be reserved to support sustainable development of relevant industries which are currently operating at the brownfields. Site 5 is proposed bus depot development with the provision of public heavy goods vehicle park to serve the local residents. Site 6 continues the planned pattern of Public Housing Development along the south side of the Ng Tung River. A sports centre is also proposed at the non-domestic portion of the southern portion of Site 6 to address the district need identified.

1.2.2 Site B2-7 is proposed to be rezoned from "Residential (Group A)2" to "Residential (Group A)6" to relax the development intensity and building height and include the Road L7 as part of the public housing development.

1.2.3 Site C2-5 and C2-6 are proposed to be relaxed the building height restriction from 5 storeys to 8 storeys to provide flexibility at the detailed design stage.

1.2.4 **Table 1** and **Table 2** summarise the land use changes and revised development schemes.

Table 1 Revised land use schedule and Changed BH in FLN NDA

Site No.	Land Use under OZP Compliant Scheme	BH (before changes)	Proposed Land Use	BH (after changes)	Land Use Change
4	Government, Institution or Community (Police Driving and Traffic Training Division and Weapons Training Division)	7 storeys	• Logistics Facilities	100mPD	Yes
5	Government, Institution or Community (Police Driving and Traffic Training Division and Weapons Training Division)	7 storeys	• Bus Depot & Public Heavy Goods Vehicle Park	60mPD	Yes
6	Other Specified Uses (Parking and Operation Facilities for Environmentally Friendly Transport System)	30mPD	• Public Housing (Southern Portion) • Open Space • Sport Centre	95-110mPD / 8 storeys	Yes
B2-7	Public Housing	120mPD	-	145mPD	No
C2-5	Government, Institution or Community (Clinic/ Health Centre)	5 storeys	-	8 storeys	No
C2-6	Government, Institution or Community (Community Hall, Refuse Collection Point and Sports Centre)	5 storeys	-	8 storeys	No

Table 2 Revised development scheme in FLN NDA

Site No.	Proposed Uses	Site Area (ha)	No. of Flats	Employment	Population
4	Logistics Facilities	5.22	-	4,566	-
5	Bus Depot & Heavy Goods Vehicle Park	3.27	-	200	-
6	Public Housing	2.15	2,446	259	6,115
	Sports Centre and RCP	0.76	-	-	-
B2-7	Public Housing	1.50	1,950	781	4,875
Total			**4,396**	**5,806**	**10,990**

1.3 Proposed Changes under S.16 Planning Application

1.3.1 **Table 3** below shows the proposed changes in PR and associated BH for the Application Sites, of which their layouts are illustrated in **Figure 1.1**.

Table 3 Proposed Changes for Application Sites under FLN NDA Remaining Phase

Site No.	Location	Permissible Development Intensity	Proposed Development Intensity (% of Relaxation)	Permissible BH	Proposed BH (% of Relaxation)	Net Increase (Flat Production)
Public Housing Sites						
A1	Northwest of Area 6	PR: 3.50	PR: 4.85 (38.6%)	75-90mPD	95-110mPD (22.7-26.7%)	492
A2	Northeast of Area 6	PR: 3.50	PR: 4.89 (39.7%)	75-90mPD	95-110mPD (22.7-26.7%)	488
A3	Southeast of Area 6	DPR: 4.00 NDPR: 1.00	PR: 6.50 (30%)	120mPD	130mPD (8.3%)	367
A4	North of Area 8	PR: 3.50	PR: 4.84 (38.3%)	90mPD	100mPD (11.1%)	224
A5	South of Area 8	DPR: 4.00 NDPR: 1.00	PR: 6.50 (30%)	120mPD	125mPD (4.2%)	290
A6	West of Area 13	PR: 3.50	PR: 4.88 (39.4%)	75mPD	97.5mPD (30%)	438
A7	Northeast of Area 14	PR: 5.00	PR: 6.98 (39.6%)	110mPD	135mPD (22.7%)	443
A8	West of Area 15	PR: 4.00	PR: 5.58 (39.5%)	90mPD	115mPD (27.8%)	369

Site No.	Location	Permissible Development Intensity	Proposed Development Intensity (% of Relaxation)	Permissible BH	Proposed BH (% of Relaxation)	Net Increase (Flat Production)
A9	Southwest of Area 17	DPR: 5.00 NDPR: 1.00	PR: 7.80 (30%)	105mPD	135mPD (28.6%)	572
					Sub-total	**3,683**
Private Housing Sites						
B1	Area 7	PR: 2.00	PR: 2.40 (20%)	55mPD	55mPD (0%)	31
B2	North of Area 10	PR: 3.50	PR: 4.20 (20%)	75mPD	75mPD (0%)	86
B3	Northwest of Area 10	DPR: 2.17 NDPR: 0.87	PR: 3.64 (20%)	80mPD	80mPD (0%)	61
B4	East of Area 10	PR: 3.50	PR: 4.20 (20%)	75mPD	75mPD (0%)	87
B5	East of Area 13	PR: 3.50	PR: 4.20 (20%)	75mPD	80mPD (6.7%)	221
B6	West of Area 14	PR: 5.00	PR: 6.00 (20%)	110mPD	120mPD (9.1%)	142
B7	Southeast of Area 14	DPR: 5.00 NDPR: 1.00	PR: 7.20 (20%)	115mPD	140mPD (21.7%)	206
B8	Northwest of Area 16	DPR: 5.00 NDPR: 1.00	PR: 7.20 (20%)	110mPD	120mPD (9.1%)	132
B9	Northeast of Area 16	DPR: 5.00 NDPR: 1.00	PR: 7.20 (20%)	110mPD	120mPD (9.1%)	178
B10	Southwest of Area 16	DPR: 5.00 NDPR: 1.00	PR: 7.20 (20%)	110mPD	120mPD (9.1%)	177
B11	Southeast of Area 16	DPR: 5.00 NDPR: 1.00	PR: 7.20 (20%)	110mPD	120mPD (9.1%)	162
					Sub-total	**1,483**
					Total	**5,166**

1.4 Environmental Assessment

1.4.1 Considering the nature and scope of the proposed changes to the proposed developments, it is anticipated that there would be no additional environmental impacts arising from the proposed changes during construction of the proposed developments.

1.4.2 During the operational phase, the identified potential sources of impacts on the proposed developments would be vehicular emissions and traffic noise from nearby roads. In this EA, the identified key issues associated with operation of the proposed developments have been addressed in the following sections.

Section 2: Air Quality
Section 3: Noise
Section 4: Water Quality
Section 5: Ecological
Section 6: Conclusion

2. AIR QUALITY IMPACT ASSESSMENT

2.1 Introduction

2.1.1 The dominant air emission sources in the vicinity of the application areas are expected to be the road traffic emissions from future roads, including Fanling Bypass Western Section (district distributor) and Roads L1, L2, L3, L4, L5 and L6 (local distributors) as well as existing roads. No observable industrial emission was found within 500 m from the application areas. Therefore, air quality impact from industrial emission is not considered to be of concern to the proposed developments. This section therefore addresses the potential air quality impact associated with road traffic emissions on the proposed developments.

2.2 Baseline Conditions

2.2.1 With reference to the approved North East New Territories New Development Areas (NENT NDAs) Environmental Impact Assessment (EIA) Report, the mean of annual average concentrations monitored at the districts of Shatin, Tai Po, Yuen Long and Tseung Kwan O of Rural/New Development areas represent the baseline concentrations for the proposed developments. The latest 5 published years of available air quality monitoring data, i.e. 2016 to 2020, are tabulated in **Table 4**.

Table 4 5-year Averaged Background Concentrations of Pollutants in Year 2016 - 2020

Pollutant	Averaging Period	Station	Concentration (µg/m³)						
			2016	2017	2018	2019	2020	5-year mean (2016-2020)	Corresponding AQOs
Nitrogen Dioxide (NO_2)	1-hr (19th Highest)	Shatin	137	144	149	150	136	140	200
		Tai Po	112	127	125	142	106		
		Yuen Long	149	156	150	161	135		
		Tseung Kwan O	127	165	135	155	136		
	Annual	Shatin	38	34	35	32	28	34	40
		Tai Po	33	39	36	36	30		
		Yuen Long	46	41	43	44	32		
		Tseung Kwan O	29*	28	28	29	23		
Respirable Suspended Particulates (RSP, PM_{10})	24-hr (10th Highest)	Shatin	66	72	65	60	54	68	100
		Tai Po	74	82	69	65	58		
		Yuen Long	86	87	75	83	77		
		Tseung Kwan O	59	65	53	60	52		
	Annual	Shatin	29	31	32	28	25	31	50
		Tai Po	29	32	31	31	24		
		Yuen Long	37	40	37	37	30		
		Tseung Kwan O	27*	31	28	29	24		

Fine Suspended Particulates (FSP, $PM_{2.5}$)	24-hr (10th Highest)	Shatin	44	54	40	39	32	44	75
		Tai Po	55	55	47	47	38		
		Yuen Long	63	52	46	45	36		
		Tseung Kwan O	41	43	32	38	29		
	Annual	Shatin	20	21	19	17	15	18	35
		Tai Po	20	22	19	20	15		
		Yuen Long	23	22	20	20	16		
		Tseung Kwan O	17*	18	15	17	12		

Remarks:
(1) Tseung Kwan O general air quality monitoring station commissioned on 16 March 2016
(2) Shaded areas indicate that the concentrations exceeded the AQOs

2.2.2 Given the air quality data monitored between 2016 and 2020, the annual average concentrations of air pollutants showed a gradually decreasing trend and a significant improvement from 2019 to 2020. The overall ambient 5-year averaged annual concentrations of pollutants NO_2, RSP and FSP were 34 µg/m^3, 31 µg/m^3 and 18 µg/m^3 respectively, meeting the Hong Kong Air Quality Objectives (AQOs). Similarly, the corresponding 5-year averaged 1-hr (19th highest) NO_2, 24-hr (10th highest) RSP and 24-hr (10th highest) FSP concentrations are 140 µg/m^3, 68 µg/m^3 and 44 µg/m^3 respectively, again meeting the corresponding AQOs.

2.2.3 Background air quality has been predicted based on hourly concentration data extracted from Environmental Protection Department (EPD)'s *Pollutants in the Atmosphere and their Transport over Hong Kong* version 2.1 (PATH v2.1) model. The proposed developments are located within PATH v2.1 Grid Cells (35,55), (35,54), (36,55), (36,54), (36,53), (37,54) and (37,53). **Table 5** provides a summary of the background levels from PATH v2.1, compared against the new 2022 AQOs which came into effect on 1 January 2022. It can be seen that the predicted background air quality concentrations are below the new 2022 AQOs without exceedances.

Table 5 Background Concentrations of Air Pollutants at Year 2022 Predicted by PATH v2.1

		PATH Grid Cell (38,31) Predicted Concentration (1)							
Air Pollutant	**Averaging Time**	**35,55**	**36,55**	**37,55**	**35,54**	**36,54**	**36,53**	**37,53**	**New 2022 Air Quality Objectives Concentration Limit**
NO_2	1-hour (19th highest)	140.2	116.4	115.1	135.6	116.4	113.7	122.2	200
	Annual	15.0	14.1	13.1	15.6	14.1	13.6	18.1	40
RSP, PM_{10} (2)	24-hour (10th highest)	69.1	69.0	71.8	67.6	69.0	70.9	68.1	100
	Annual	27.8	28.1	29.5	27.6	28.1	28.9	28.2	50
FSP, $PM_{2.5}$ (3)	24-hour (19th highest)(4)	37.5	39.5	42.3	36.6	39.5	41.6	37.6	50
	Annual	15.8	16.2	17.3	15.7	16.2	16.8	16.1	25

Notes:
(1) All concentration units are in microgram per cubic meter (µg/m^3). Exceedance of the AQOs is shown as bold characters.
(2) According to Section 2.8 of EPD's *Guideline on Choices of Models and Model parameters*, adjustment of PATH v2.1's output of RSP concentrations by adding 11.0 ug/m^3 and 10.3 ug/m^3 into 10th highest daily RSP concentration and annual RSP concentration have been followed respectively.
(3) The PATH output for the annual FSP concentration has been adjusted by adding 3.5 ug/m^3 according to Section 2.8 of EPD's *Guideline on Choices of Models and Model parameters*.
(4) As per EPD's letter dated 31 March 2021, on a best endeavour basis for conducting EIA studies, the more stringent benchmark for the 24-hour FSP AQO of no more than 18 exceedances per year (instead of 35 days) should be applied.

2.3 Vehicular Emission Impact Assessment

2.3.1 According to Table 3.1 in Chapter 9 of the *Hong Kong Planning Standards and Guidelines* (HKPSG), a minimum buffer distance of 10m is recommended between district distributors and sensitive uses (e.g., residential units), and 5m for local distributors. The future Air Sensitive Receivers (ASRs) of the planned housing sites under FLN NDA Remaining Phase due to the additional population would be affected by the induced vehicular emissions from nearby roads. **Table 6** summarizes the traffic road sources and air buffer distances from the nearest ASRs (e.g. future residential uses) as recommended in the HKPSG. Adverse vehicular emissions are not expected where the buffer distance requirement could be fulfilled. **Figures 2.1** and **2.2** illustrates buffer distance requirements FLN NDA (West) and FLN NDA (East) respectively.

Table 6 Separation Distance between Neighbouring Roads and the Nearest ASRs

Road	Category	Distance from Nearest ASRs (m)	Minimum Setback Distance as Recommended in HKPSG (m)	Meet Requirement (Y/N)
Application Sites A2, A3				
FLN Rd L4	Local Distributor	28	5	Y
FLN Rd L6	Local Distributor	11	5	Y
Application Sites A4, A5				
FLN Rd L4	Local Distributor	58	5	Y
FLN Rd L5	Local Distributor	12	5	Y
FLN Rd L6	Local Distributor	10	5	Y
Application Site B3				
FLN Rd L4	Local Distributor	14	5	Y
FLN Rd L5	Local Distributor	9	5	Y
Application Site B4				

Road	Category	Distance from Nearest ASRs (m)	Minimum Setback Distance as Recommended in HKPSG (m)	Meet Requirement (Y/N)
FLN Rd L4	Local Distributor	18	5	Y
Application Sites A6, B6				
FLN Rd L3	Local Distributor	22	5	Y
Application Sites A7, B7, B5, B8, A8, B9				
FLN Rd L1	Local Distributor	14	5	Y
Application Site B11				
FLN Rd L2	Local Distributor	13	5	Y
Application Site B10				
FLN Rd L1	Local Distributor	24	5	Y
FLN Rd L2	Local Distributor	17	5	Y
Application Site A9				
FLN Rd L1	Local Distributor	23	5	Y
FLN Rd L2	Local Distributor	7	5	Y
Ma Sik Rd	District Distributor	27	10	Y
Site 4				
Access Road	-	-	-	-
Site 5				
Fanling Bypass Western Section	District Distributor	>10	10	Y
Access Road	-	-	-	-
Site 6				
Man Kam To Road	-	-	-	-
FLN Rd L4	Local Distributor	90	5	Y
Site B2-7				
FLN Rd L4	Local Distributor	26	5	Y

3. NOISE IMPACT ASSESSMENT

3.1 Introduction

3.1.1 With respect to the proposed changes in PR and BH restriction and land uses, major concern would be the potential road traffic noise impact on the proposed residential developments from nearby roads, which is addressed in this section.

3.2 Baseline Conditions

3.2.1 It is intended to optimize the development potential at the planned housing sites under FLN NDA Remaining Phase in where they adjoin the nearby roads. The existing noise sources in the vicinity of the Project site are dominated by road traffic noise from Man Kam To Road, the proposed Fanling Bypass Western Section, Ma Sik Road and other local roads.

3.3 Assessment Methodology

3.3.1 The road traffic noise impacts were predicted based on methods described in *Calculation of Road Traffic Noise* published by the Department of Transport, U.K.

3.3.2 The assessment year was based on the maximum traffic projection within 15 years upon the occupation of the proposed residential developments and social welfare facilities under FLN NDA Remaining Phase. Full population intake of the proposed housing developments is expected to be 2031. As a worst-case scenario, the road traffic noise impact assessment has been undertaken using AM peak hour traffic flow of 2046, which is 15 years upon the operation of the proposed roads under Agreement No. CE18/2019 (CE) adjacent to the proposed housing developments, social welfare facilities and kindergarten. Existing and future road network within 300m assessment boundary from the proposed housing developments, social welfare facilities and kindergarten have been considered in this road traffic noise assessment.

3.3.3 The future Noise Sensitive Receivers (NSRs) of the proposed housing developments, social welfare facilities and kindergarten under FLN NDA Remaining Phase would be affected by the induced road traffic noise from nearby roads, such as Ma Sik Road and FLN Local Roads L1 to L6 due to increased traffic from the additional population. Representative noise sensitive facades of the NSRs have been identified for the road traffic noise impact assessment. The locations of the noise assessment points for residential, social welfare and kindergarten are shown in **Figures 3.1**, **3.2** and **3.3** respectively.

3.4 Traffic Noise Impact Assessment Results

3.4.1 Road traffic noise levels at the noise assessment points for residential have been predicted based on the traffic forecast in 2046 and are presented in **Table 7**. The adopted traffic forecast data and the detailed breakdown under Scenario 1 (Base Case) and Scenario 2 (With Additional At-source Mitigation Measures) are presented in **Annexes 3.1, 3.2** and **3.3** respectively. The committed mitigation measures at source in the form of noise barriers and low noise road surfacing (LNRS) as adopted under Agreement No. CE 13/2014 (CE) have been applied in this road traffic noise impact assessment under Scenario 1 (Base Case).

Table 7 Predicted Road Traffic Noise Levels at Representative NSRs (Residential)

Site No.	NSR ID	Max. Predicted L_{10} (1-hr) dB(A) under Scenario 1 (Base Case)	At-source Mitigation Measures in Place	Max. Predicted L_{10} (1-hr) dB(A) under Scenario 2 (With Additional At-source Mitigation Measures)
A1	RB101-302	69.4	-	-
A2	RD101-301	70.4	-	-
A3	RE101-205	69.0	-	-
B1	RA101-203	**72.6**	Yes[1]	70.4
A4	RF101-202	69.9	-	-
A5	RG101-203	68.9	-	-
B3	RH101-301	70.0	-	-
B2	RI101-301	68.3	-	-
B4	RJ101-203	**71.1**	Yes[1]	69.8
A6	RK101-204, RL101-105	**70.7**	Yes[1]	70.4

Site No.	NSR ID	Max. Predicted L_{10} (1-hr) dB(A) under Scenario 1 (Base Case)	At-source Mitigation Measures in Place	Max. Predicted L_{10} (1-hr) dB(A) under Scenario 2 (With Additional At-source Mitigation Measures)
B5a	RM101-301	69.5	-	-
B5b	RN101-401	69.3	-	-
B6	RP101-401	**71.0**[2]	-	-
A7	RQ101-205	66.6	-	-
B7	RR101-401	**71.7**[2]	-	-
A8	RO101-301	68.3	-	-
B8	RS101-202	67.0	-	-
B9	RT101-301	66.8	-	-
B10	RU101-301	67.5	-	-
B11	RV101-301	65.1	-	-
A9	RW101-402	70.4	-	-
B2-2a (Site 6)	RX101-404	**75.6**	Yes[1]	**74.2**[3]
B2-7	RC101-202	68.8	-	-

Note:
(1) LNRS at-source measures were proposed.
(2) Adopting noise mitigation measures at receiver end of the public housing blocks to reduce the visually unpleasant and substantial nos. of noise barrier(s) placing at source. Noise attenuation at receiver by 2dB(A) will be applied.
(3) LNRS at-source measures are proposed. After exhausting practical at-source mitigation measures, there is still exceedance by 3.8 dB(A). To mitigate the residual impact, noise attenuation follows the table under Technical Note on "Noise Attenuation for Modular Flat Design (MFD) with Acoustic Window". Noise attenuation 5.4 dB(A) without sound absorptive lining is applied.
(4) Bold figures indicate NSRs with traffic noise level exceeding the standard as stipulated in HKPSG
(5) HKPSG noise criterion for residential is 70 dB(A)

3.4.2 As indicated in **Table 7**, most of the noise sensitive facades at the residential assessment points would comply with the noise criterion of 70 dB(A), after exhausting practical at-source mitigation measures. For the facades predicted with noise exceedance at the assessment points for residential, mitigation measures such as adoption of non-sensitive use at that particular façade or acoustic insulation could be adopted to avoid adverse traffic noise impact or minimise the traffic noise level to acceptable level respectively. With consideration of the magnitude of the identified exceedance, it is anticipated common mitigation measures, such as acoustic windows and fins will be applicable, subject to detailed design. It is anticipated the mentioned mitigation measures will not affect the development restrictions.

3.4.3 Non-compliance of the noise criterion was predicted at some assessment points of social welfare and kindergarten. Notwithstanding, the building block layouts are subject to further changes in the later stage, this assessment serves the purpose of assessing all potential facades in a worst-case scenario. It is suggested that non-sensitive use or acoustic insulation of the facades with noise exceedance should be applied. With the adoption of such additional mitigation measures, there would be no exceedance at the sensitive uses. The locations of residential, social welfare and kindergarten assessment points with predicted noise exceedance under Scenario 1 (Base Case), i.e. without additional mitigation measures, are illustrated in **Figures 3.4**, **3.5** and **3.6** respectively.

4. WATER QUALITY IMPACT ASSESSMENT

4.1 Introduction

4.1.1 The proposed changes are related to PR and BH to accommodate additional population only and the locations of the proposed developments remain unchanged and within the original development footprint. No additional water quality impact arising from the proposed changes are expected during construction phase. However, there may be a concern on the additional sewage generated from the additional population during operational phase. This section discusses the potential water quality impact during construction and operational phases of the proposed developments.

4.2 Baseline Conditions

River Water Quality

4.2.1 FLN NDA is located within the catchment of River Indus (Ng Tung River). There are two EPD river water quality monitoring stations in FLN NDA. Station IN2 is located in the mid-stream section of the river and next to the proposed developments under FLN NDA Remaining Phase. Station IN1 is located further downstream and is close to the confluent with River Beas. In 2020, the overall Water Quality Objective (WQO) compliance rate of River Indus was 85%. The downstream station IN1 had a "Good" grading while the mid-stream (IN2) maintained to be "Good". Environmental monitoring data since 2012 (i.e., after the dataset provided in the approved EIA) are presented in **Table 8**.

Table 8 Summary of EPD's Routine River Water Quality Monitoring Data for the River Indus between 2012 and 2020

Parameter	Monitoring Point	Concentration (Annual Medians of Monthly Samples)								
		2012	2013	2014	2015	2016	2017	2018	2019	2020
Dissolved Oxygen (DO) (mg/L)	IN1	5.0	6.0	6.1	5.6	4.5	5.1	5.3	5.9	6.0
	IN2	6.8	7.1	7.1	7.2	6.2	6.9	7.4	6.7	6.1
pH	IN1	7.3	7.2	7.2	7.2	7.3	7.2	7.0	7.0	7.2
	IN2	7.5	7.4	7.2	7.3	7.4	7.4	7.1	7.3	7.3
Suspended Solid (SS) (mg/L)	IN1	33	26	21	37	12	17	39	13.5	16
	IN2	7	4	5	5	6	6	8	6.1	6.1
Biological Oxygen Demand (BOD5) (mg/L)	IN1	5	4	4	6	4	5	4	3.7	3.7
	IN2	3	2	3	3	2	2	2	1.9	3
Chemical Oxygen Demand (COD) (mg/L)	IN1	17	14	16	20	16	25	23	22	23
	IN2	8	5	8	8	9	7	12	9	11

Marine Water Quality

4.2.2 Runoff from the FLN NDA, after collected in River Indus, would be drained into Shenzhen River and eventually reach Inner Deep Bay. Marine water quality of Inner Deep Bay water is monitored by EPD and there are 3 monitoring stations (DM1 to DM3) within Inner Deep

Bay. Station DM1 is the innermost station while station DM3 is the outermost. In 2020, the overall WQO compliance rate of the Deep Bay Water Control Zone was 67%. The annual depth-averaged total inorganic nitrogen (TIN) levels in the Deep Bay Inner Marine Subzone were higher than the respective TIN WQO. Environmental monitoring data since 2012 (i.e. after the dataset provided in the approved EIA) are presented in **Table 9**.

Table 9 Summary of EPD's Routine Marine Water Quality Monitoring Data for the Inner Deep Bay between 2012 and 2020

Parameter	Monitoring Point	Concentration (Annual Means of Monthly Samples)								
		2012	2013	2014	2015	2016	2017	2018	2019	2020
Dissolved Oxygen (mg/L)	DM1	4.9	4.3	3.7	4.5	4.5	4.8	4.5	5.5	5.9
	DM2	5.6	5.0	4.6	5.1	4.9	5.3	5.1	5.8	6.1
	DM3	6.1	6.7	5.4	5.5	5.8	6.4	5.5	5.9	6.0
Ammonia Nitrogen (mg/L)	DM1	1.942	2.517	2.080	1.340	1.961	1.680	0.679	0.497	0.455
	DM2	1.643	1.953	1.405	0.913	1.324	1.102	0.475	0.422	0.331
	DM3	0.433	0.382	0.536	0.256	0.431	0.200	0.121	0.129	0.134
Unionised Ammonia, mg/L (Annual mean)	DM1	0.014	0.026	0.025	0.016	0.013	0.019	0.007	0.009	0.007
	DM2	0.017	0.028	0.025	0.019	0.012	0.016	0.005	0009	0.006
	DM3	0.006	0.009	0.014	0.006	0.006	0.004	0.002	0.004	0.004
Nitrite Nitrogen, mg/L	DM1	0.49	0.35	0.37	0.43	0.39	0.41	0.40	0.22	0.131
	DM2	0.42	0.30	0.29	0.37	0.30	0.34	0.35	0.16	0.105
	DM3	0.24	0.16	0.18	0.21	0.17	0.17	0.19	0.09	0.061
Nitrate Nitrogen (mg/L)	DM1	1.2	0.9	1.0	1.1	0.7	0.9	1.5	1.4	1.300
	DM2	1.2	0.8	0.9	0.9	0.7	0.8	1.4	1.2	1.080
	DM3	1.1	0.8	0.8	0.9	0.8	0.9	1.0	0.9	0.753
Total Inorganic Nitrogen, mg/L (Annual mean)	DM1	3.62	3.78	3.48	2.84	3.10	3.00	2.59	2.16	1.89
	DM2	3.23	3.06	2.61	2.22	2.34	2.28	2.20	1.75	1.52
	DM3	1.81	1.37	1.48	1.41	1.43	1.24	1.28	1.10	0.95
Total Kjeldahl Nitrogen (mg/L)	DM1	2.78	3.34	2.78	2.38	3.57	2.80	1.48	1.09	0.90
	DM2	2.15	2.67	1.94	1.67	2.51	1.78	0.91	0.90	0.79
	DM3	0.70	0.69	0.85	0.61	0.75	0.47	0.37	0.49	0.39
Total Nitrogen, mg/L	DM1	4.47	4.61	4.17	3.88	4.71	4.12	3.39	2.75	2.33
	DM2	3.73	3.78	3.15	2.98	3.52	2.96	2.64	2.23	1.98
	DM3	2.08	1.67	1.79	1.76	1.75	1.51	1.53	1.45	1.21
Orthophosphate Phosphorus (mg/L)	DM1	0.238	0.224	0.213	0.236	0.244	0.234	0.174	0.154	0.151
	DM2	0.206	0.185	0.183	0.200	0.212	0.197	0.144	0.126	0.123
	DM3	0.099	0.079	0.093	0.086	0.115	0.085	0.076	0.071	0.061
Total Phosphorous (mg/L)	DM1	0.34	0.36	0.31	0.37	0.40	0.38	0.26	0.28	0.24
	DM2	0.26	0.29	0.27	0.30	0.36	0.29	0.23	0.19	0.21
	DM3	0.13	0.11	0.13	0.16	0.18	0.13	0.11	0.10	0.10
E.coli (cfu/100L) (Annual geometric mean)	DM1	829	4226	1338	1792	13518	3278	986	760	200
	DM2	256	2000	377	337	4496	574	378	490	160
	DM3	27	58	37	23	138	14	11	56	22
pH	DM1	7.1	7.3	7.4	7.2	7.1	7.2	7.2	7.5	7.4
	DM2	7.3	7.5	7.5	7.5	7.2	7.4	7.3	7.7	7.6
	DM3	7.4	7.7	7.7	7.7	7.5	7.6	7.4	7.8	7.8
Suspended Solids (mg/L)	DM1	50	51	46	44	49	44	40	69	37
	DM2	25	32	23	33	48	29	39	43	47.4
	DM3	9	12	16	12	12	12	17	16	15.3
Salinity (psu)	DM1	15.5	13.7	15.5	15.2	10.8	12.9	14.5	13.4	14.6
	DM2	16.9	15.6	17.6	16.6	12.1	15.2	16.7	15.5	16.6
	DM3	19.8	20.6	21.3	20.2	17.7	19.9	21.3	19.6	21.5

4.3 Impact Assessment and Mitigation Measures

Construction Phase

4.3.1 Considering that the proposed changes are related to PR and BH to accommodate additional population only and the locations of the proposed developments remain unchanged and within the original development footprint, together with the implementation of mitigation measures including the *Practice Note for Professional Persons on Construction Site Drainage* (ProPECC Note PN1/94) as recommended in Section 5.7 of the NENT NDAs EIA Report, additional water quality impact due to the proposed changes is not anticipated during construction phase.

Operational Phase

4.3.2 During operation, it is expected that additional sewage would be generated from the additional population under the proposed developments. There would be potential impact to the existing trunk sewerage system in FLN NDA and Shek Wu Hui Sewage Treatment Works due to the discharge of additional sewage generated. Sewerage and Drainage Impact Assessments (Appendices 5 and 7 respectively) have been undertaken with the initial finding that the additional sewage generated could be catered for. Details of the assessments are provided in separate SIA and DIA reports under Agreement No. CE 18/2019 (CE).

4.3.3 Other potential water quality impact during operational phase would be the surface runoff from open spaces during rainfall events, known as non-point source pollution. Proper drainage systems with silt traps and oil interceptors will be installed where necessary. Given the stochastic nature of non-point source pollution and the adoption of flexible management to suit the site conditions, the impact to the receiving water body is insignificant.

5. ECOLOGICAL IMPACT ASSESSMENT

5.1 Introduction

5.1.1 This section provides ecological impact review associated with the additional population due to the proposed changes in PR and BH restriction and land uses. The housing sites in FLN NDA Remaining Phase and proposed use/development have been covered in the approved EIA Report (Register No. AEIAR-175/2013) under Schedule 3 of the EIAO. Review will also include any changes subsequent to the approved EIA Report under the NENT NDAs Study.

5.2 Baseline Conditions

FLN NDA Remaining Phase

5.2.1 In the EIA study during Investigation Phase, the key ecological impacts identified in pertinence to the proposed changes in plot ratio and building height restriction for accommodating additional population in housing sites in Remaining Phase of FLN NDA include those on Ng Tung River and the associated wetland fauna especially waterbirds, as they may be disturbed by the construction works of the housing sites in Remaining Phase.

FLN Sites 4-6

5.2.2 FLN Sites 4-6 are located on both sides of Ng Tung River near Man Kam To Road. Developed area is the dominant habitat, whilst agricultural land (both dry and wet), plantation, grassland and waste ground are present to lesser extents. In addition, FLN Site 5 includes part of a meander of Ng Tung River. Ng Tung River meanders were considered to be of Low to Moderate ecological value by the 2013 approved EIA Report. The EIA Report also recorded species of conservation importance including Chinese Bullfrog and Dingy Dusk-hawker within the three sites in FLN.

5.2.3 All of the three sites in FLN abut Ng Tung River, which provides habitats and foraging ground for many wetland dependent species. The approved EIA Report evaluated the tidal section of this river as of Moderate Ecological Value, due to its importance in maintaining linkages between Long Valley and the Deep Bay wetland ecosystem and as a foraging area for waterbirds of conservation importance. The non-tidal section was considered as of Low to Moderate ecological value due to its importance in maintaining ecological linkages and being used as a foraging area by small numbers of waterbirds of conservation importance.

5.2.4 Man Kam To Egretry was recorded in a piece of plantation between FLN Sites 4 and 5. The egretry ranked as the 9th largest egretry in Hong Kong in 2018 with a total of 15 nests of Little Egret and 24 nests of Chinese Pond Heron. As it will be unavoidably impacted by the development of Fanling Bypass Western Section, compensatory provision of habitat suitable for establishment of an egretry is proposed in areas A1-7 and B1-7 of FLN NDA as part of the First Phase Works.

5.3 Construction Impact Review

5.3.1 Considering the proposed changes in plot ratio and building height restriction for accommodating additional population and proposed use/development as well as the site locations remain unchanged still within the original development footprint, no additional construction ecological impacts arising from the proposed changes are expected.

5.3.2 Egretry Habitat Creation and Management Plan (EHCMP) under First Phase Project detailing the establishment of alternative egretry sites before the commencement of construction works was approved in October 2020. According to the monthly egretry monitoring report under the First Phase Project, there has been an active split colony of egretry since 2019 at the container yard (FLN Site 6), additional measures would be proposed for the split colony further to the enhancement works to the egretry carried out under the First Phase Project.

5.4 Operational Impact Review

5.4.1 The proposed public housing developments in FLN Site 6 would increase the potential disturbance to the surrounding habitats, but it would be of a greater concern given that Ng Tung River is a flight corridor used by birds moving between foraging and nesting and roosting locations.

5.4.2 Birds breeding in egretries move to nearby wetlands in order to forage for food for both themselves and their chicks. This implies that the buildings in FLN Site 5 have the potential to obstruct the breeding flight lines of nearby egretries. However, it is expected that the Man Kam To egretry will have been removed when the developments start to operate in FLN Site 5; therefore, potential blockage of Man Kam To egretry flight lines is not anticipated. In regard to the egretry habitat at FLN A1-7 & B1-7 to be re-provided, firstly it depends on the successful establishment of the new egretries. Secondly, the design of the new egretry habitat at FLN A1-7 and B1-7 ensures waterbody (with fish), which is connected with Ng Tung River, around the breeding sites, such that the food is readily available at the egretries *per sei*. It is not expected that the breeding ardeids (if any) at FLN A1-7 and B1-7 would spend more energy flying for a longer distance to forage; therefore, in the operational stage, potential impacts of the development at the three FLN sites on the flight lines of the new egretries (if any) is considered to be low.

5.5 Recommended Mitigation Measures

Construction Phase

5.5.1 Since there would be no additional ecological impact assessment due to the proposed changes in PR and BH restriction and land uses, the mitigation measures proposed in the 2013 approved EIA Report are valid which relevant mitigation measures extracted from there are listed as follows:

- Measures to control hydrological disruption, construction run-off and pollution.
- 2m high solid site barrier fences in dull green colour should be erected between river channel and any active works area along or adjacent to Ng Tung River to minimse potential ecological impact.
- No construction along tidal Ng Tung River to 09.00 to 17.30 during the ardeid breeding season (1st March to 31st July)

5.5.2 For the split colony of egretry recorded since 2019 at FLN Site 6, part of the existing meander at Site B2-1c would be proposed as a compensation site to provide suitable habitat for the egrets. The additional measures at the suggested location would include compensatory planting to provide additional nesting opportunities and the use of bird decoys to attract egretry to the new location. AFCD and relevant parties would be consulted for the design and implementation of the additional measures.

Operational Phase

5.5.3 In the operational phase, all the proposed mitigation measures in the 2013 approved EIA Report relevant to the proposed development sites are also valid. Moreover, in view of the increased disturbance, more measures to reduce the operational disturbances, especially those caused by the residential buildings, should be in place. The mitigation measures extracted from the 2013 approved EIA Report and additional measures proposed are listed below.

Measures Extracted from the Approved EIA Report

- Planning for retention of existing trees in Open Space zones along the Ng Tung River and incorporating of these in screen planting along the river in the detailed design of these Open Space zones.

- Project proponent / detailed design consultant (detailed design of Green Corridors along watercourses and detailed design of Open Space areas and development areas along river corridors.

Additional Measures

- Design the periphery of the proposed developments as landscape areas where trees and shrubs are planted densely to screen out the visual and noise disturbance potentially arising from the increased human activities in the residential area.

- Use non-transparent and non-reflective materials for the building facades wherever possible to reduce glare impact.

- Minimize night-time light sources, and design carefully the positioning, angling and lighting of the proposed residential development to avoid directing it towards adjacent disturbance-sensitive habitats.

6. CONCLUSIONS

6.1 Overall

6.1.1 An EA has been carried out for the additional population due to the proposed developments under FLN NDA Remaining Phase to ascertain that the proposed changes are acceptable from the environmental perspective. In view of the proposed changes are related to minor relaxation of PR and associated BH only, there would be no additional environmental impacts arising from the proposed changes during the construction of the proposed developments. During operation, potential environmental impacts in terms of air quality, noise and water quality have been evaluated with findings summarized as follows.

6.1.2 The development schemes would be subject to change at the detailed design stage. The mitigation measures proposed / recommended would be further studied and refined based on the development schemes of all public housing sites at the detailed design stage.

6.2 Air Quality

6.2.1 With sufficient separation distance between neighbouring roads and the nearest ASRs as recommended in HKPSG, no adverse impact on the future ASRs from vehicular emission is expected.

6.3 Noise

6.3.1 Based on traffic forecast at year 2046, the predicted traffic noise levels for most of the noise sensitive facades at the residential assessment points would comply with the noise criterion of 70 dB(A) after exhausting practical at-source mitigation measures. For the facades predicted with noise exceedance at the assessment points for residential, mitigation measures such as adoption of non-sensitive use at that particular façade or acoustic insulation could be adopted to avoid adverse traffic noise impact or minimise the traffic noise level to acceptable level respectively. With the adoption of mitigation measures, there would be no exceedance at the sensitive uses.

6.3.2 Non-compliance of the noise criterion was predicted at some assessment points of social welfare and kindergarten. It is suggested that non-sensitive use or acoustic insulation of the facades with noise exceedance should be applied. With the adoption of additional mitigation measures, there would be no exceedance at the sensitive uses.

6.4 Water Quality

6.4.1 The additional sewage generated during operation could be catered for as indicated by sewage and drainage impact assessments conducted separately. Appropriate measures such as installation of proper drainage systems where necessary would be adopted to minimise/avoid the potential water quality impact to the receiving water body. Since the proposed changes are related to minor relaxation of PR and associated BH only and remain within the FLN NDA boundary, it is therefore anticipated that there would be no adverse water quality impact associated with the proposed changes.

6.5 Ecological

6.5.1 The construction and operation ecological impact due to the proposed changes in PR and BH restriction and land uses are reviewed. Since the development footprint remain unchanged, no additional construction ecological impacts arising from the proposed changes are expected. For the additional split colony of egretry recorded since 2019 at FLN Site 6, additional measures would be proposed such as additional compensation site at Site B2-1c further to the enhancement works to the egretry carried out under the First Phase Project. AFCD and relevant parties would be consulted for the design and implementation of the additional measures.

6.5.2 Relevant mitigation measures related to the development sites in the EIA stage are still valid. In addition, more mitigation measures are proposed in view of the increase in the level of disturbance by human activities due to the proposed public housing development in the operational stage. With implementation of these mitigation measures, no unacceptable operational ecological impacts are expected.

FIGURES



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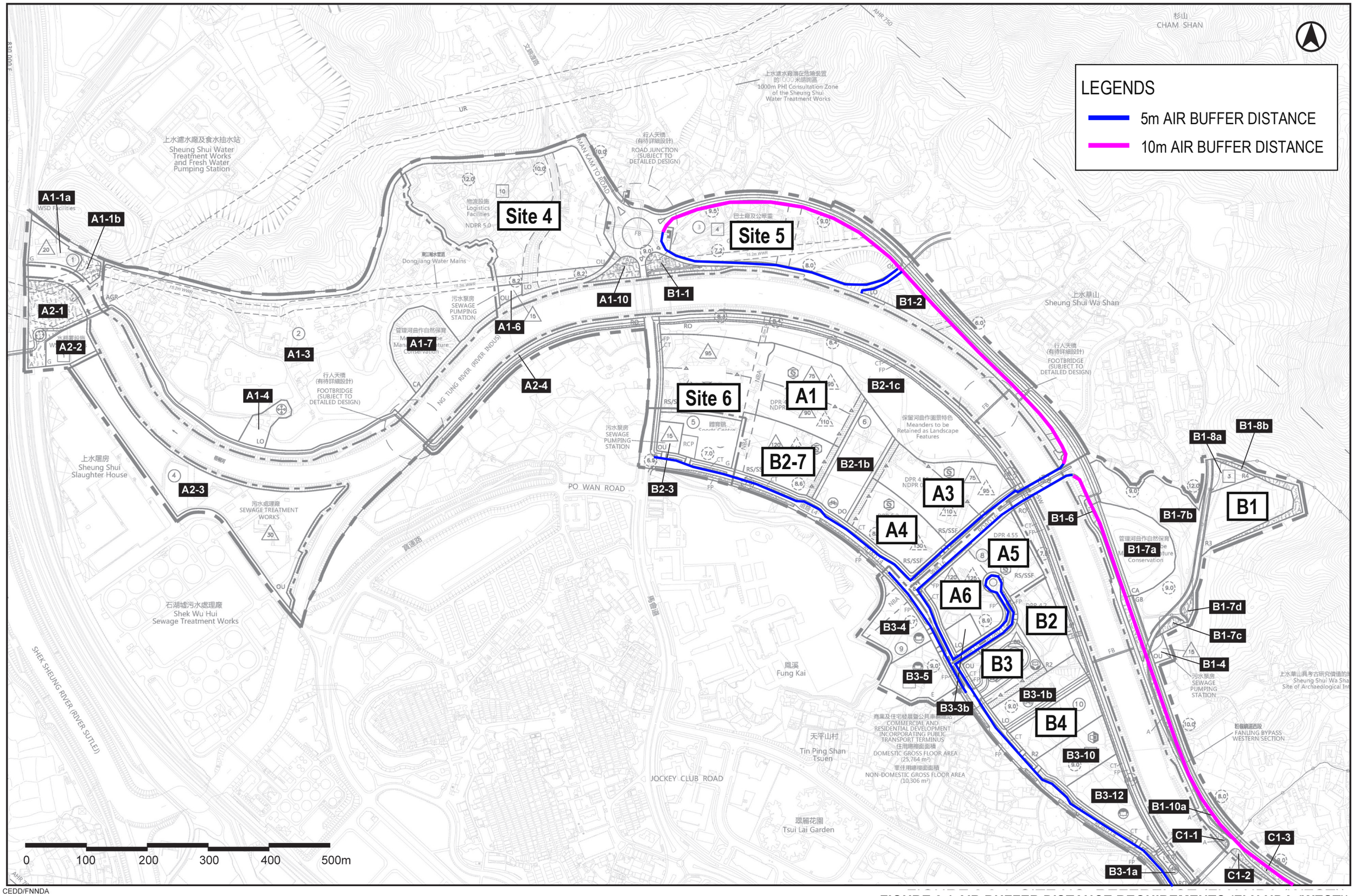
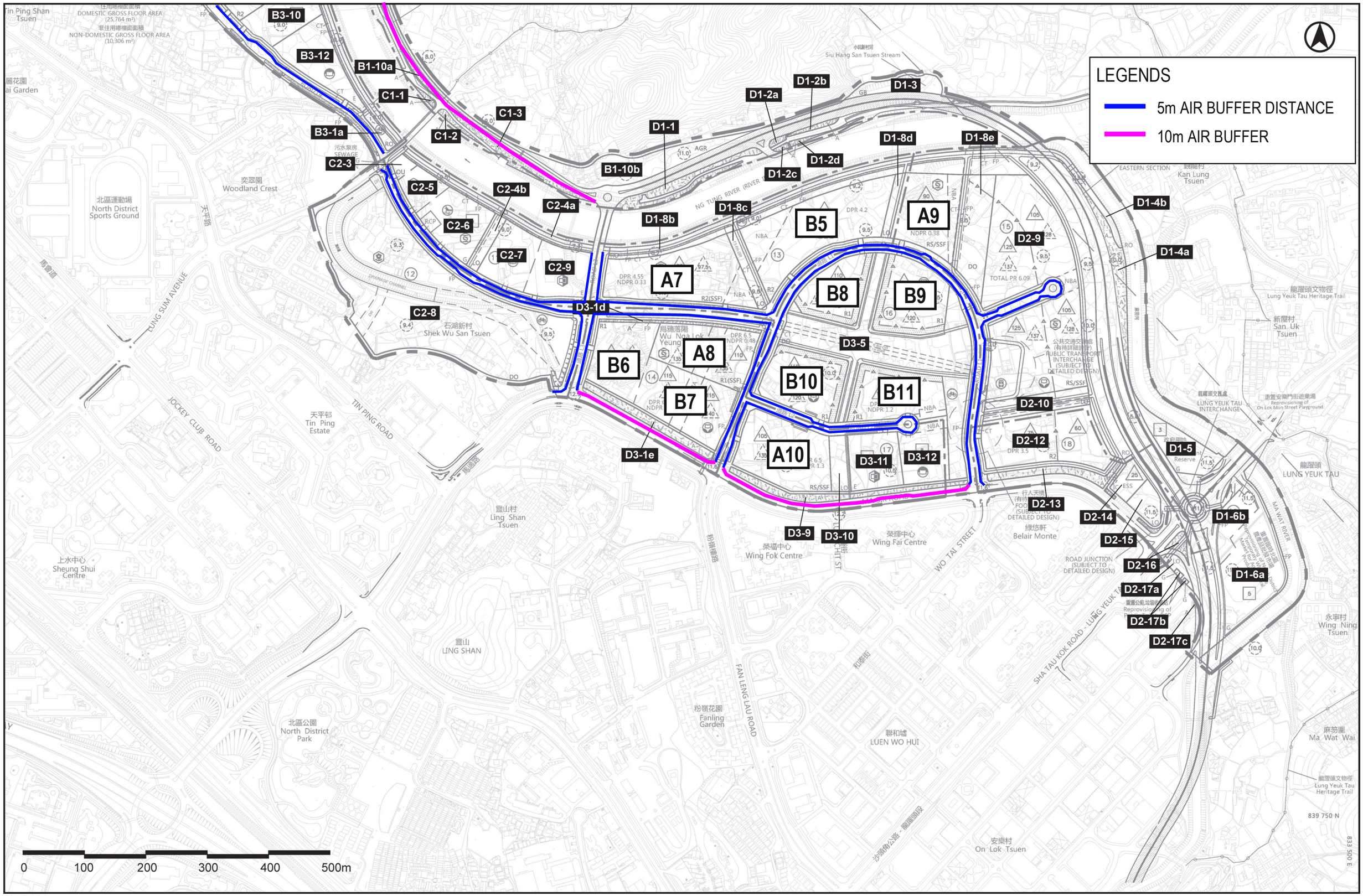
FIGURE 1.1 LOCATIONS OF THE DEVELOPMENT SITES IN FLN NDA REMAINING PHASE



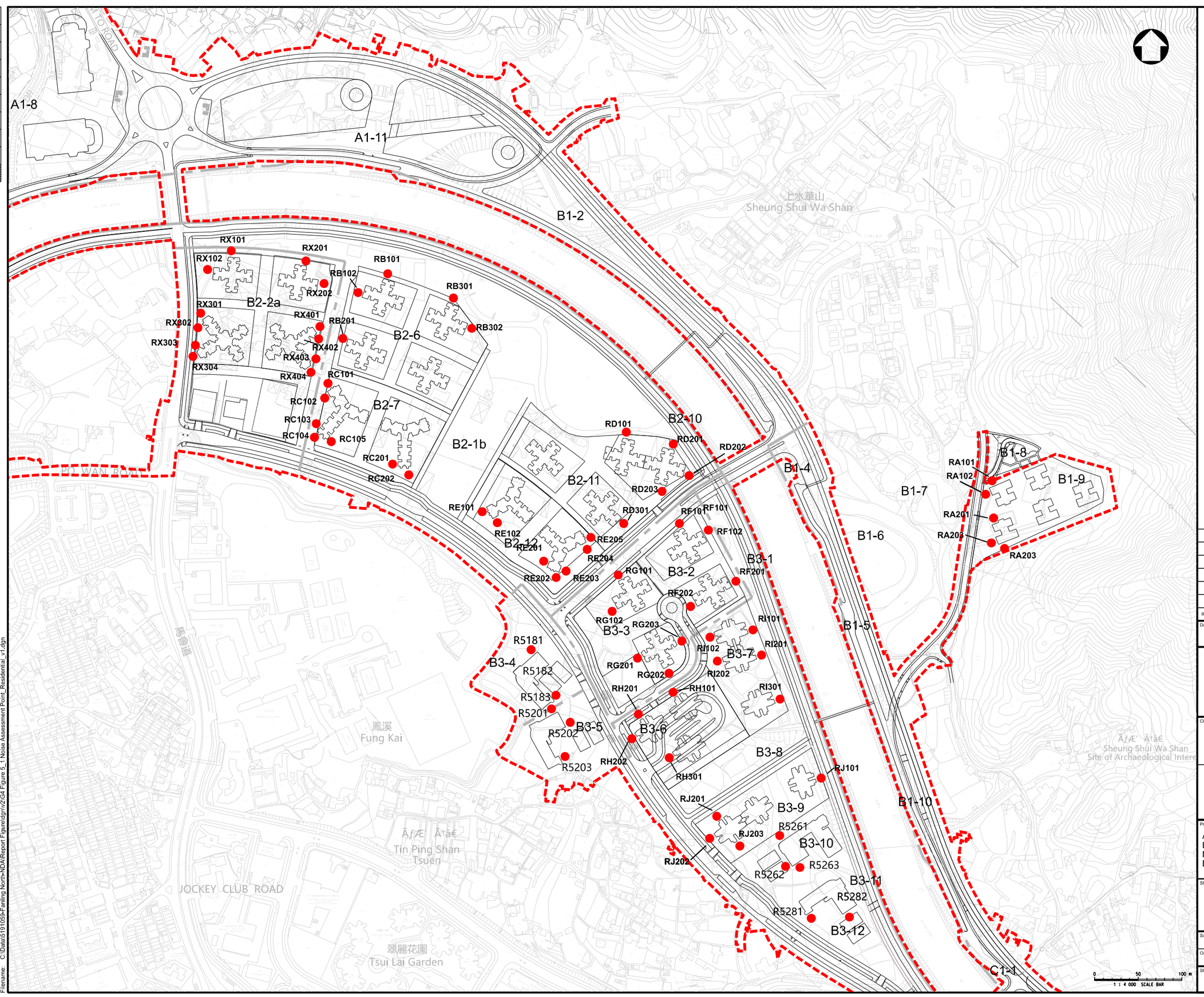
CEDD/FNNDA

FIGURE 2.1 AIR BUFFER DISTANCE REQUIREMENTS (FLN NDA (WEST))



CEDD/FNNDA

FIGURE 2.2 AIR BUFFER DISTANCE REQUIREMENTS (FLN NDA (EAST))



LEGEND:

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- RA101 — NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Assessment Points - Road Traffic Noise (Residential) (FLN NDA (East))

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
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Sheet Number: FIGURE 3.1A

Revision: A

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LEGEND:

BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA

RA101/R5281 NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE

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Project Title: AGREEMENT NO. CE 18/2019 DEVELOPMENT OF FANLING NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title: Locations of Assessment Points - Road Traffic Noise (Residential) (FLN NDA (West))

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Sheet Number: FIGURE 3.1B

Revision: A

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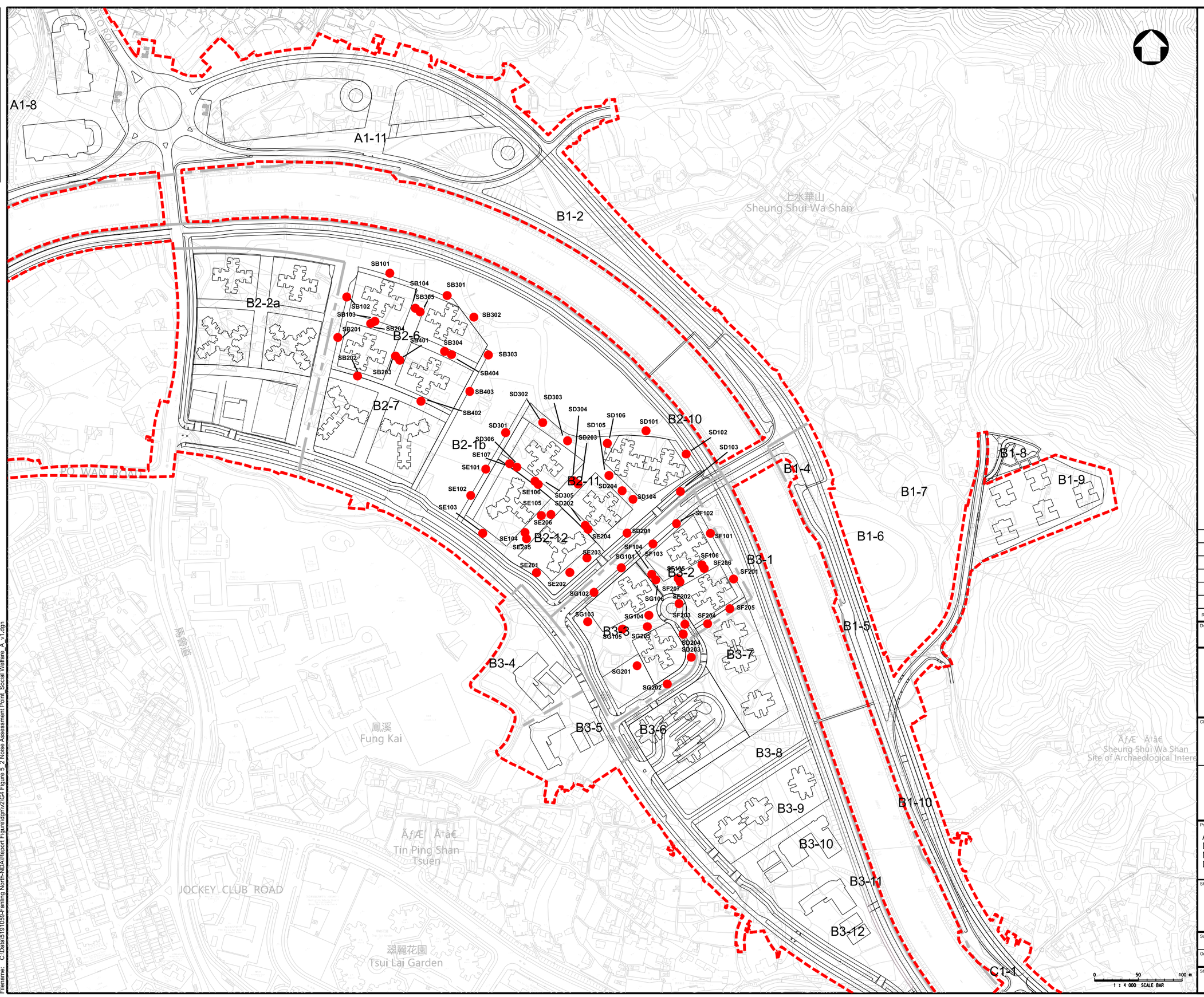

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Project Title:
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DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Assessment Points - Road Traffic Noise (Social Welfare) (FLN NDA (East))

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Revision: A

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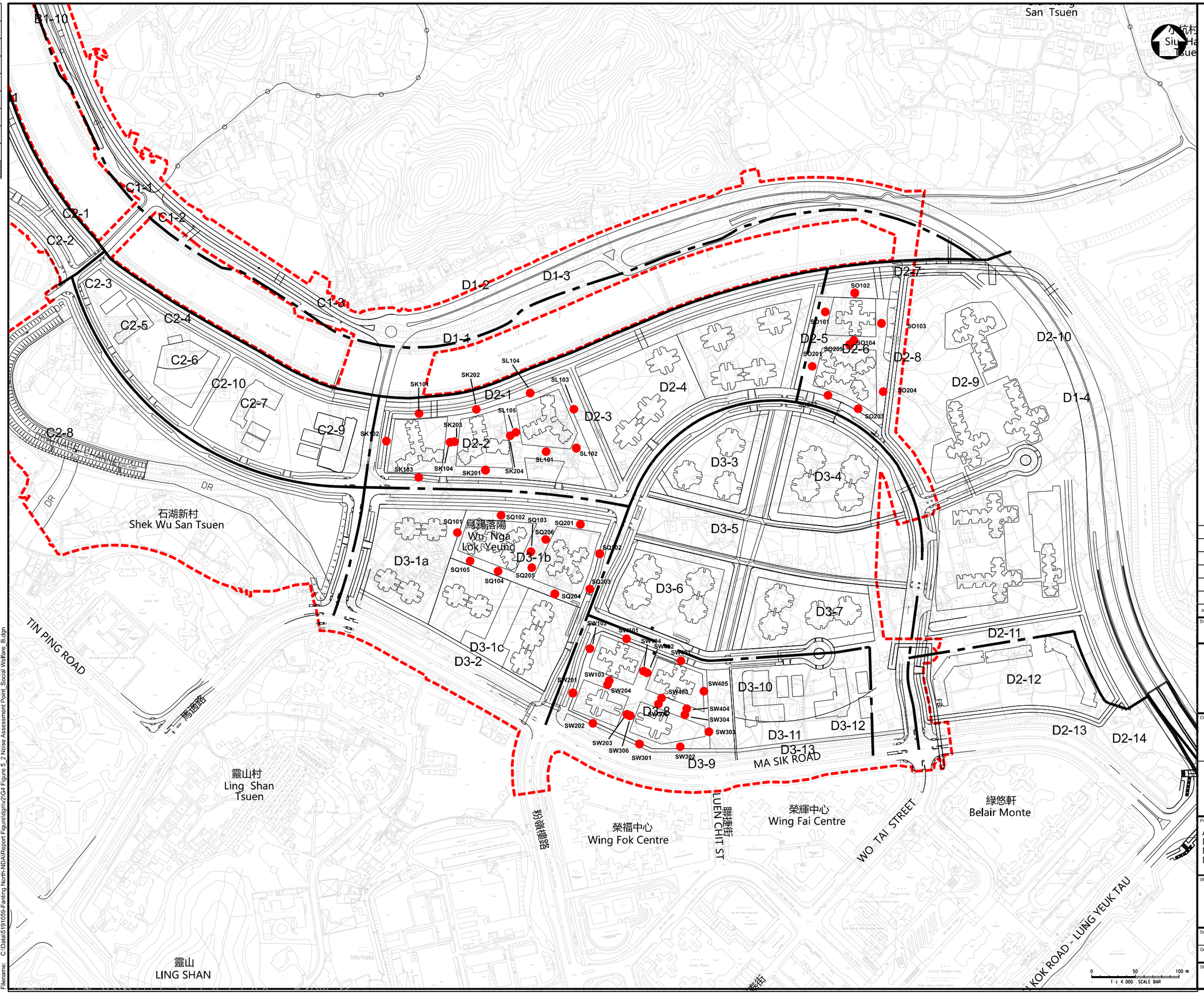

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Rev.	Date	Description	By	Chk'd	App'd

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DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Assessment Points - Road Traffic Noise (Social Welfare) (FLN NDA (West))

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BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA

K0101 NOISE ASSESSMENT POINT

A1-8
A1-11
B1-2
B2-2a
B2-6
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B2-10
B2-1b
B2-11
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B1-10
C1-1

K0101 K0102 K0103 K0104 K0105 K0106 K0111 K0112 K0113 K0114 K0115 K0116 K0117 K0301 K0302 K0303 K0304 K0305 K0306 K0307 K0308 K0311 K0312 K0313 K0314 K0315 K0401 K0402 K0403 K0404 K0406 K0407 K0408

上水華山
Sheung Shui Wa Shan

鳳溪
Fung Kai

Tin Ping Shan Tsuen

翠麗花園
Tsui Lai Garden

JOCKEY CLUB ROAD

PO WAN ROAD

Sheung Shui Wa Shan Site of Archaeological Interest

0 50 100 m
1 : 4 000 SCALE BAR

Rev.	Date	Description	By	Chk'd	App'd

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Project Title

AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title

Locations of Assessment Points - Road Traffic Noise (Kindergarten) (FLN NDA (East))

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Sheet Number: FIGURE 3.3A

Revision: A

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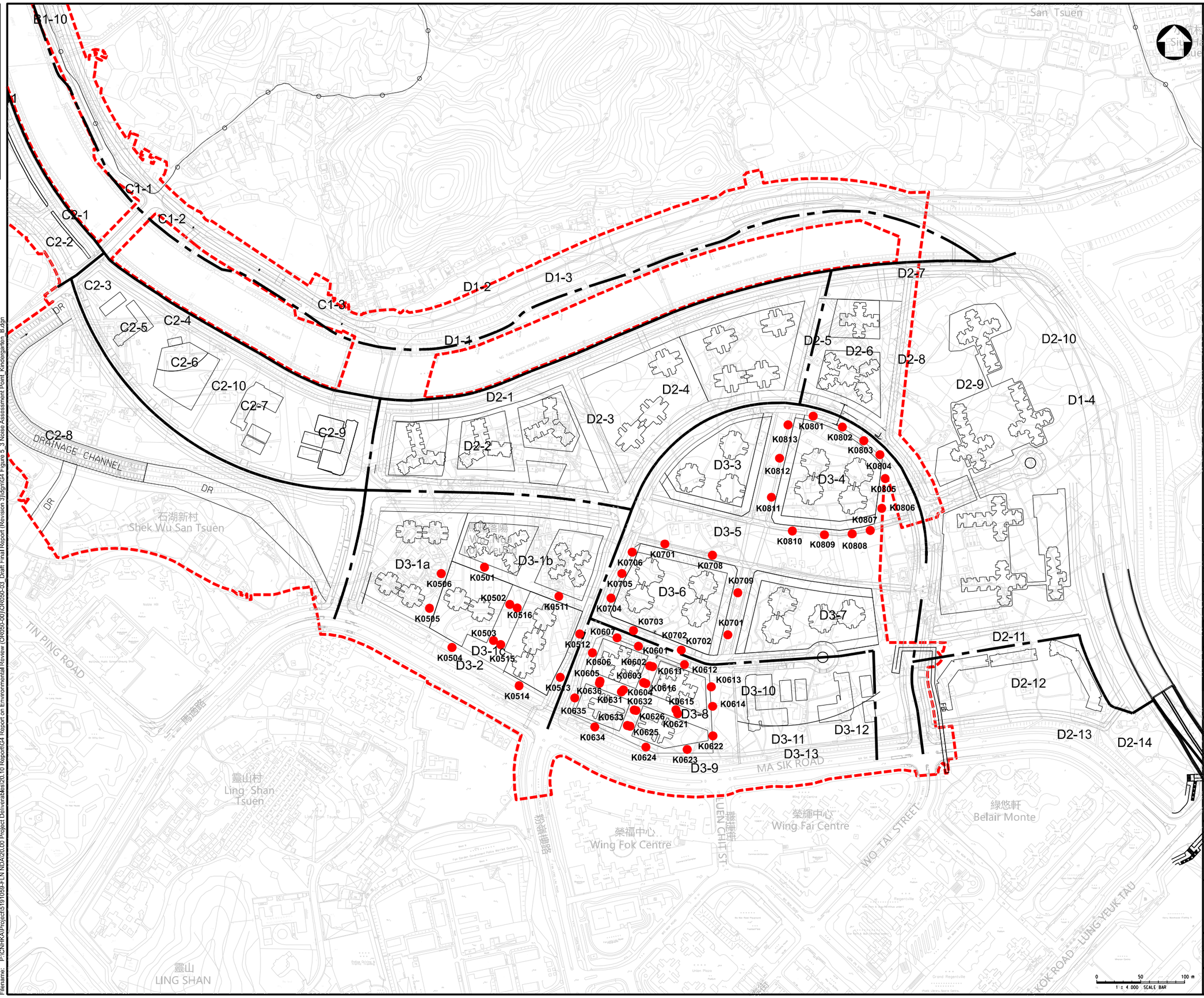

LEGEND:

BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA

K0101 NOISE ASSESSMENT POINT

Rev.	Date	Description	By	Chk'd	App'd

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Project Title
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE -
DESIGN AND CONSTRUCTION

Sheet Title
Locations of Assessment Points -
Road Traffic Noise
(Kindergarten) (FLN NDA (West))

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Sheet Number: FIGURE 3.3B

Revision: A

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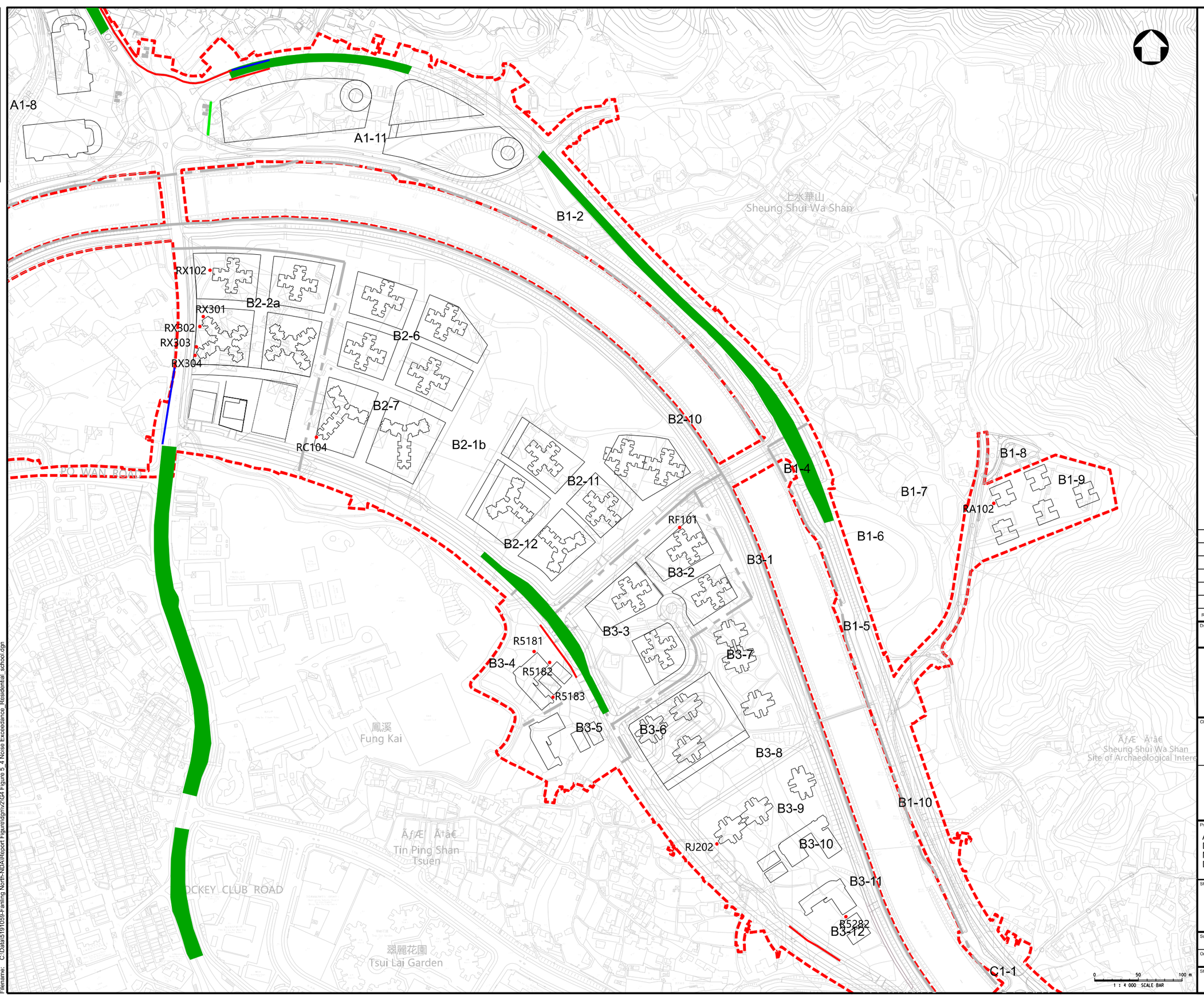

LEGEND:

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- RA101/R5281 NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE
- PROPOSED 2m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- FIXED WINDOW DESIGN WITH VENTILATION SYSTEM

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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Client: CEDD 土木工程拓展署 Civil Engineering and Development Department

北拓展處 NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Noise Exceedances Predicted at Proposed Residential Developments (FLN NDA (East))
(Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Sheet Number: FIGURE 3.4A

Revision: A

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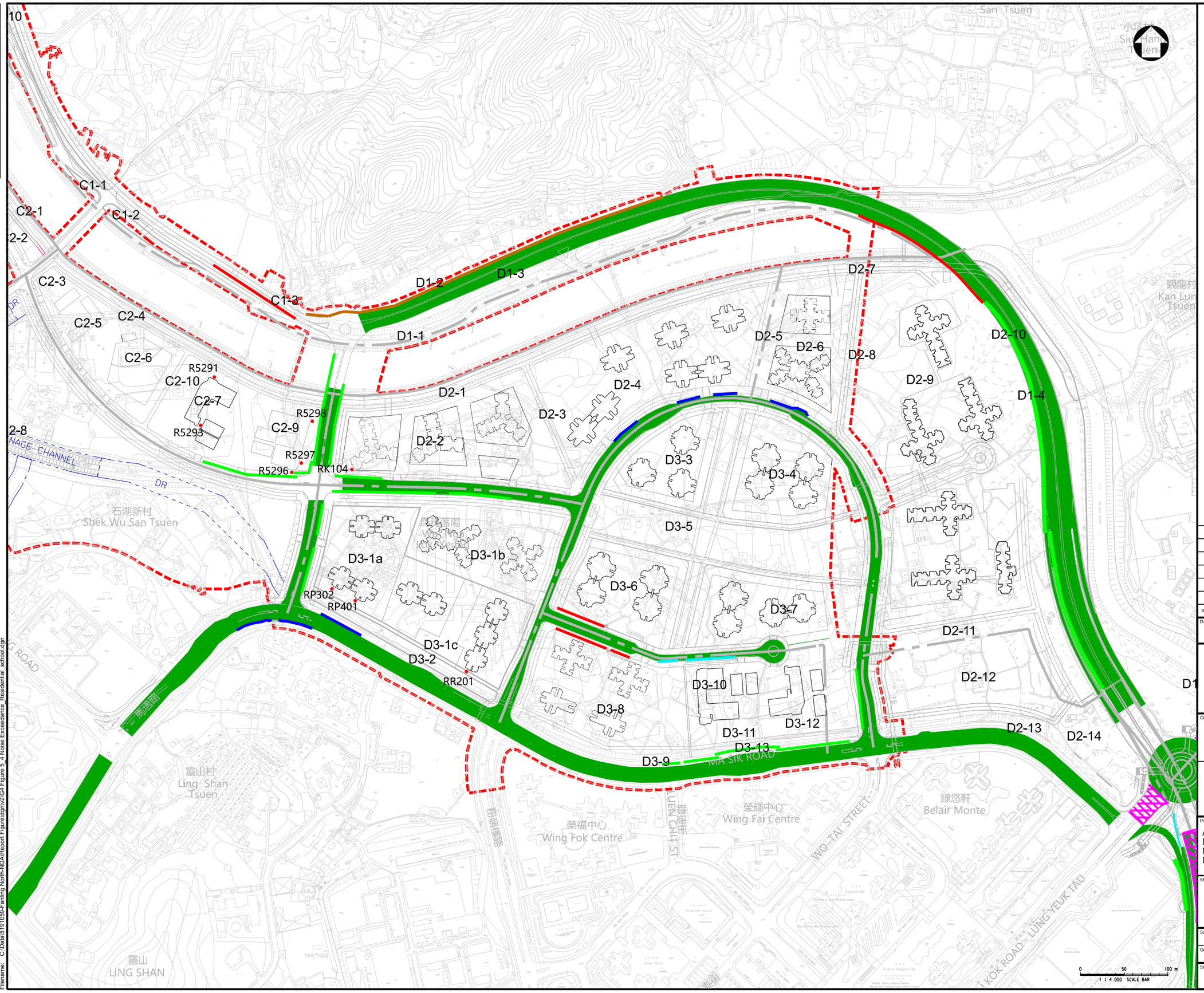

LEGEND:

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- RA101 — NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- FIXED WINDOW DESIGN WITH VENTILATION SYSTEM
- FIXED WINDOW DESIGN WITH VENTILATION SYSTEM

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Noise Exceedances Predicted at Proposed Residential Developments (FLN NDA (West)) (Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
Original Size	Date	Date	Date	Date
A3	JUL 2022	JUL 2022	JUL 2022	JUL 2022

Sheet Number: FIGURE 3.4B

Revision: A

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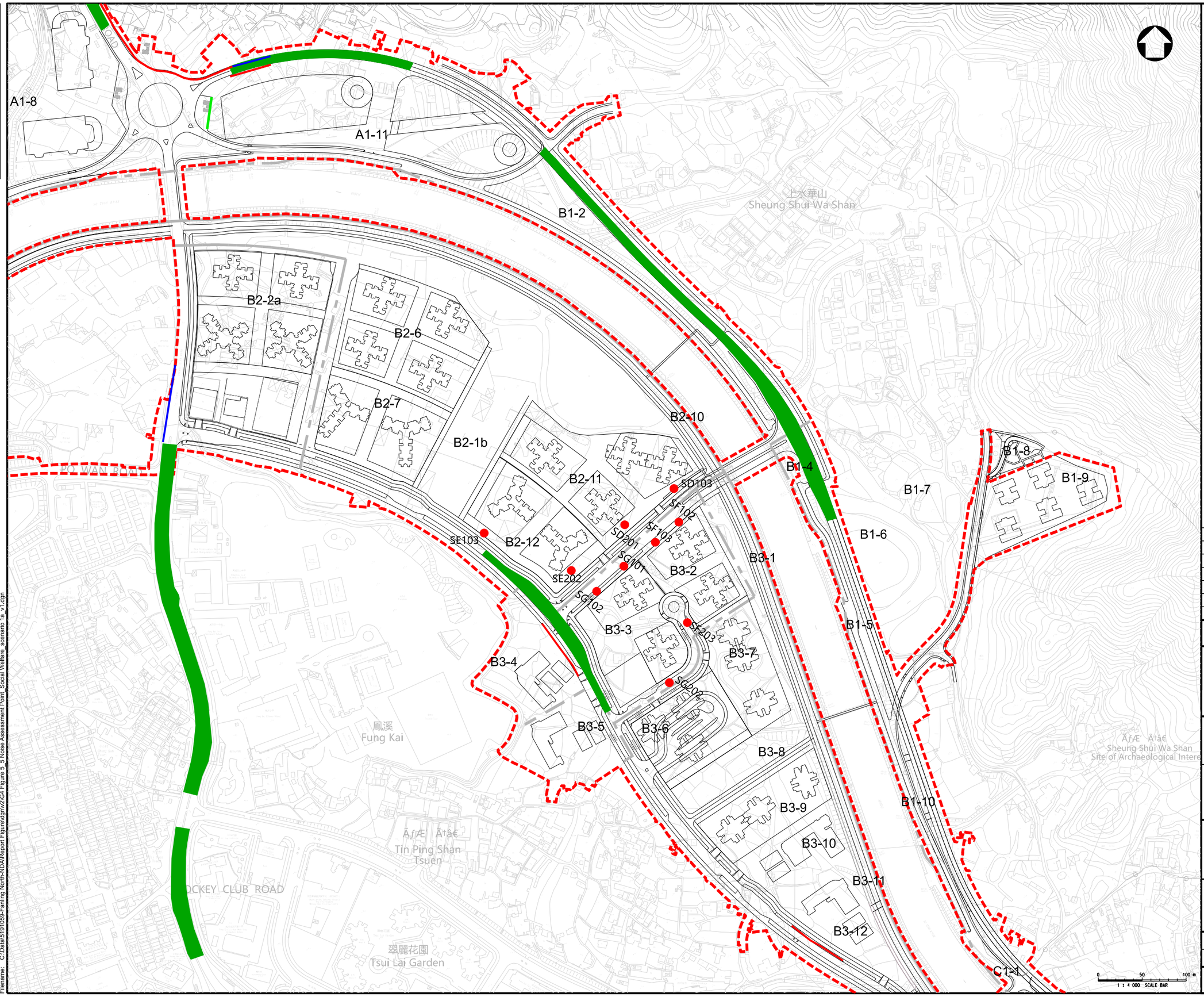

LEGEND:

MEASURES UNDER CE13/2014 (UNMITIGATED SCENARIO)

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- RA101 — NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED FULL ENCLOSURE
- FIXED WINDOW DESIGN WITH VENTILATION SYSTEM
- LOW NOISE ROAD SURFACING (LN)

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Noise Exceedances Predicted at Proposed Social Welfare Facilities (FLN NDA (East))
(Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
Original Size	Date	Date	Date	Date
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Sheet Number: FIGURE 3.5A

Revision: A

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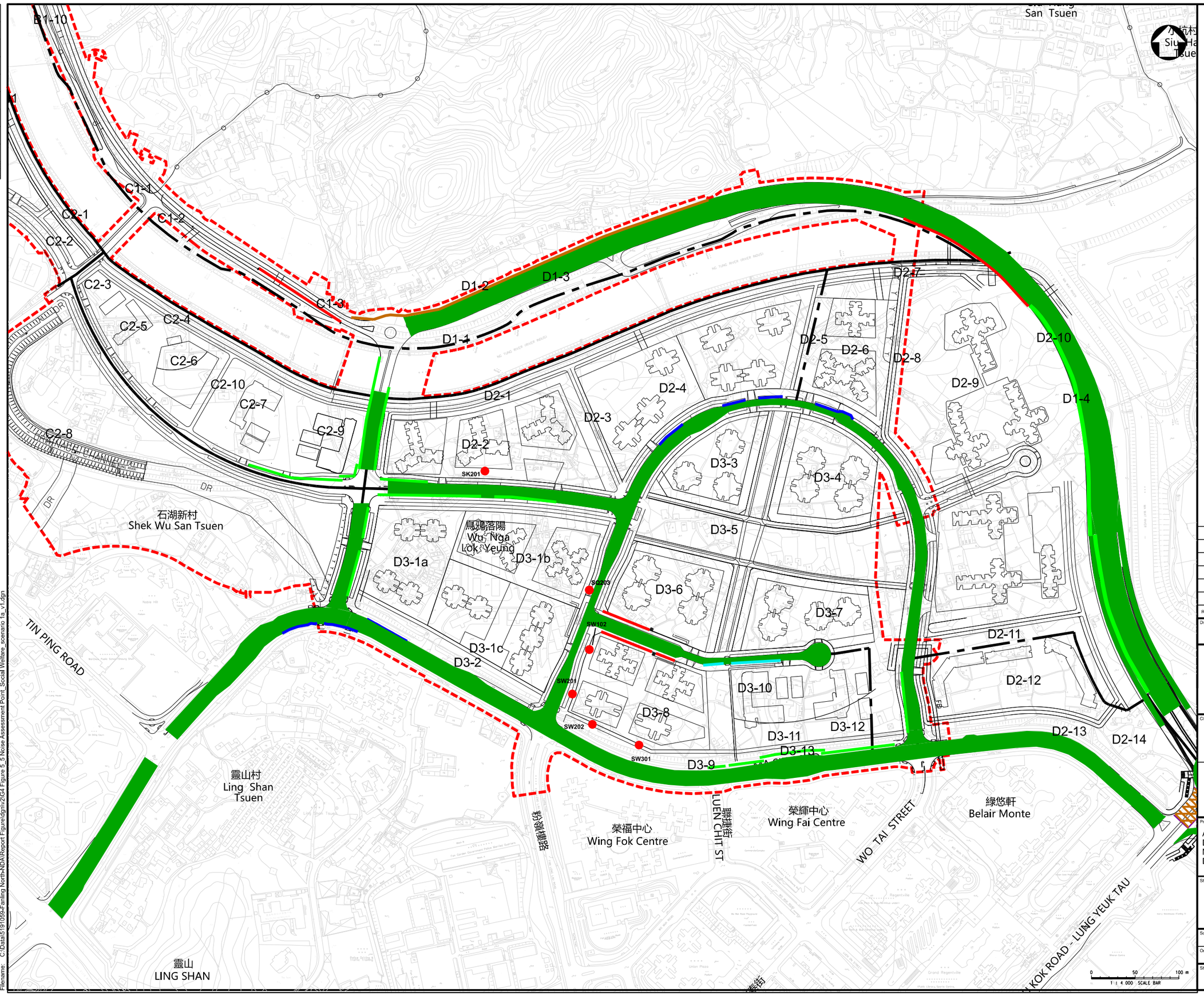

LEGEND:

MEASURES UNDER CE13/2014 (UNMITIGATED SCENARIO)

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- RA101/R5281 — NOISE ASSESSMENT POINT WITH PREDICTED NOISE EXCEEDANCE
- PROPOSED 2m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED FULL ENCLOSURE
- PROPOSED SEMI ENCLOSURE(WITH OPENING SIDE)
- LOW NOISE ROAD SURFACING (LN)

FURTHER MEASURES PROPOSED UNDER CE18/2019 (MITIGATED SCENARIO)

- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- UPGRADED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- LOW NOISE ROAD SURFACING (LN)

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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NORTH DEVELOPMENT OFFICE

Project Title: AGREEMENT NO. CE 18/2019 DEVELOPMENT OF FANLING NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title: Locations of Noise Exceedances Predicted at Proposed Social Welfare Facilities (FLN NDA (West)) (Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
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Sheet Number: FIGURE 3.5B

Revision: A

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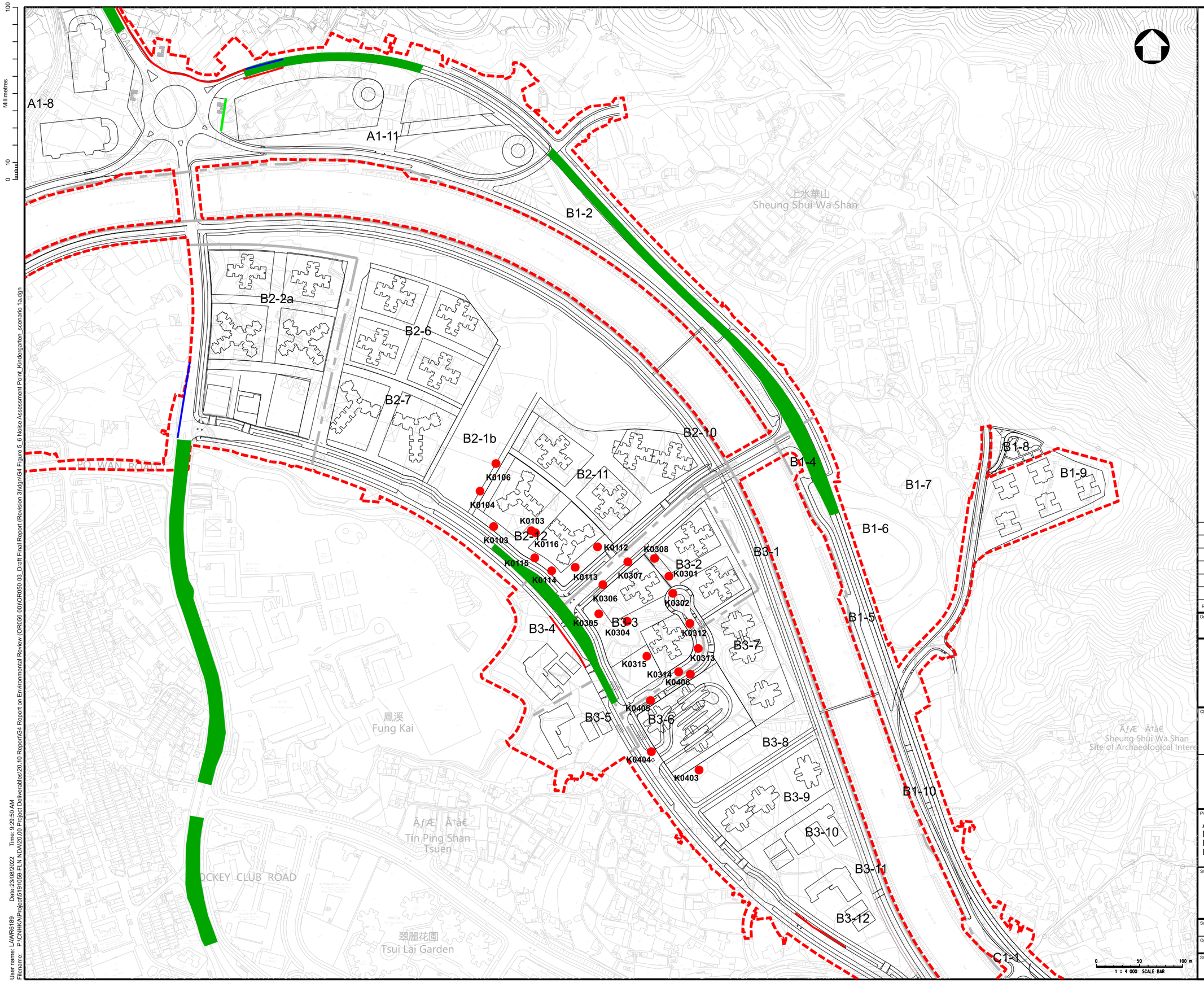

LEGEND:

MEASURES UNDER CE13/2014 (UNMITIGATED SCENARIO)

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- K0101 NOISE ASSESSMENT POINT
- PROPOSED 2m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED FULL ENCLOSURE
- FIXED WINDOW DESIGN WITH VENTILATION SYSTEM
- LOW NOISE ROAD SURFACING (LN)

LOW NOISE ROAD SURFACING (LN)

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

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NORTH DEVELOPMENT OFFICE

Project Title:
AGREEMENT NO. CE 18/2019
DEVELOPMENT OF FANLING NORTH
NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title:
Locations of Noise Exceedances Predicted at Proposed Kindergartens (FLN NDA (East)) (Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
Original Size	Date	Date	Date	Date
A3	JUL 2022	JUL 2022	JUL 2022	JUL 2022

Sheet Number: FIGURE 3.6A

Revision: A

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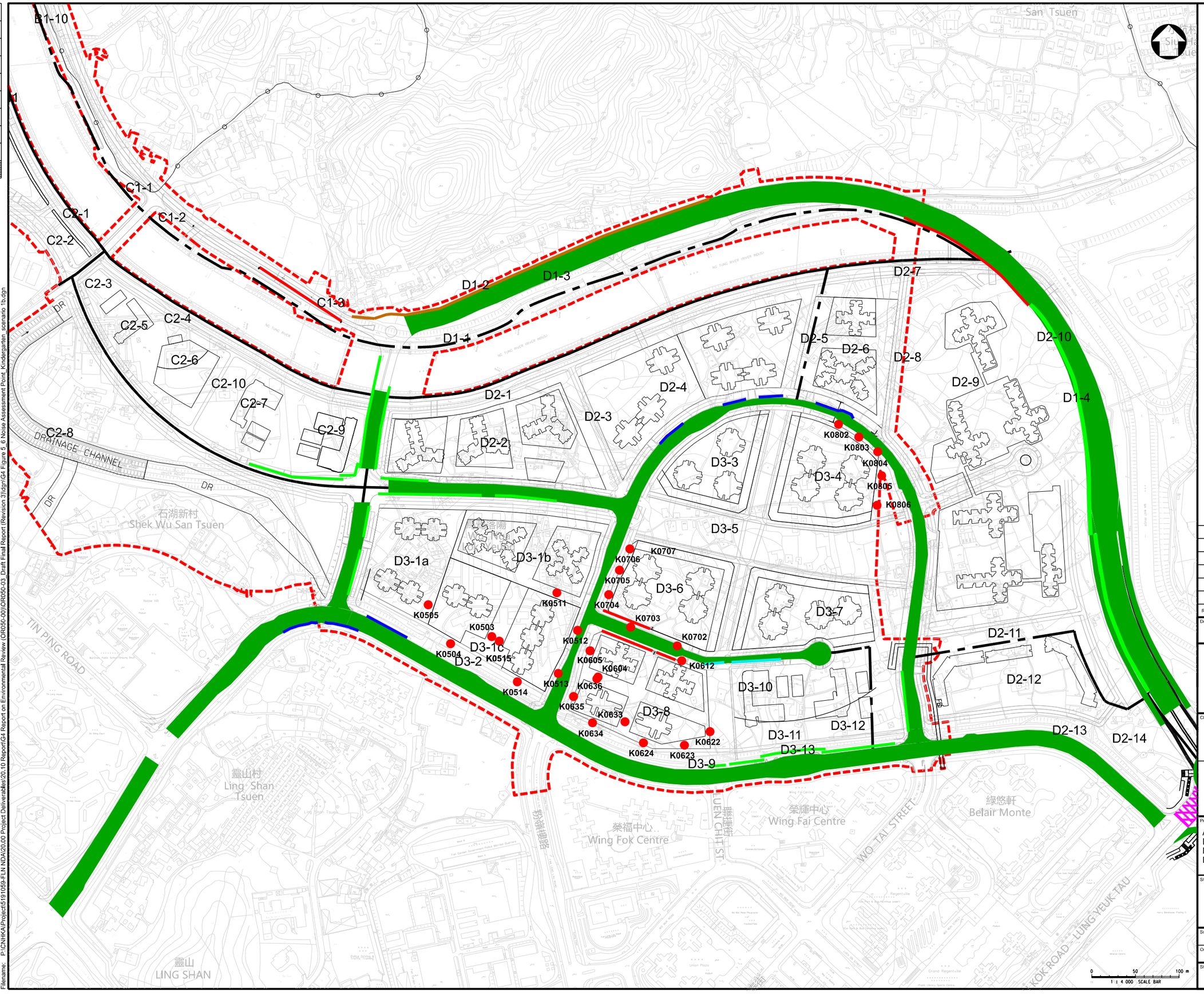

LEGEND:

MEASURES UNDER CE13/2014 (UNMITIGATED SCENARIO)

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- K0101 NOISE ASSESSMENT POINT
- PROPOSED 2m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 3m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m VERTICAL NOISE BARRIER(ABSORPTIVE)
- PROPOSED 5m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED 7m + 3m CANTILEVER NOISE BARRIER(ABSORPTIVE)
- PROPOSED FULL ENCLOSURE
- PROPOSED SEMI ENCLOSURE(WITH OPENING SIDE)
- LOW NOISE ROAD SURFACING (LN)

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: INVESTIGATION

Suitability: -

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北拓展處
NORTH DEVELOPMENT OFFICE

Project Title: AGREEMENT NO. CE 18/2019 DEVELOPMENT OF FANLING NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN AND CONSTRUCTION

Sheet Title: Locations of Noise Exceedances Predicted at Proposed Kindergartens (FLN NDA (West)) (Base Case Scenario 1)

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	VAR	CAD	VAR	VAR
Original Size	Date	Date	Date	Date
A3	JUL 2022	JUL 2022	JUL 2022	JUL 2022

Sheet Number: FIGURE 3.6B

Revision: A

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ANNEX 3.1

TRAFFIC FORECAST IN YEAR 2046

Year 2046 Link Flow

Index[1]	Road	Section	Direction	Design Traffic Speed (km/hr)	Flow (Veh/hr) [2]		Heavy Vehicle % [3]	
					AM	PM	AM	PM
1	Fanling Bypass Western Section	Between Man Kam To Road and FLN Road L6	EB	50	380	430	30%	25%
			WB	50	410	350	30%	25%
2	Hung Kiu San Tsuen Access Road	Near Hung Kiu San Tsuen	EB	50	20	20	20%	20%
			WB	50	10	10	20%	20%
3	Wa Shan Access Road	Near Wa Shan	NB	50	10	10	20%	20%
			SB	50	10	20	20%	20%
4	Access Road	From Man Kam To Road	EB	50	80	110	20%	20%
			WB	50	70	60	25%	35%
5	Access Road	Bwtween Hung Kiu San Tsuen and Wa Shan	NB	50	20	20	20%	20%
			SB	50	30	40	20%	20%
6	Access Road	Near Ng Tung River	EB	50	10	10	20%	20%
			WB	50	10	10	20%	20%
7	Fanling Bypass Western Section	Between FLN Road L6 and FLN Road L3	EB	50	860	700	20%	30%
			WB	50	730	840	25%	15%
8	Access Road	Near Wa Shan Public School	NB	50	100	210	30%	25%
			SB	50	210	140	30%	10%
9	Jockey Club Road	Between Road L4 and Ng Tung River	NB	50	980	780	30%	35%
			SB	50	900	870	30%	35%
10	Jockey Club Road	Between Road L4 and Po Wan Road	NB	50	1140	1000	25%	30%
			SB	50	1330	1080	25%	30%
11	Po Wan Road	Between Jockey Club Road and Chuk Wan Street	EB	50	510	250	30%	35%
			WB	50	340	240	20%	30%
12	Jockey Club Road	Between Po Wan Road and Tin Ping Road	NB	50	1140	950	20%	25%
			SB	50	1480	1040	20%	25%
13	FLN Road L4	Between Man Kam To Road and Road L6	EB	50	570	490	15%	20%
			WB	50	790	470	15%	15%
15	FLN Road L4	Between Road L7 and Road L6	EB	50	600	450	10%	20%
			WB	50	660	540	15%	15%
16	FLN Road L6	Between Road L4 and Fanling Bypass	NB	50	520	320	10%	10%
			SB	50	340	520	15%	10%
17	FLN Road L4	Between Road L6 and Road L5	EB	50	400	410	15%	20%
			WB	50	520	330	20%	15%
18	FLN Road L5	-	NB	50	100	130	10%	15%
			SB	50	200	90	10%	10%
19	FLN Road L4	Between Road L5 and Lung Sam Avenue	EB	50	350	300	15%	20%
			WB	50	370	260	20%	15%
20	Tin Ping Road	Between Fung Nam Road and Fung Nam Road	EB	50	340	170	10%	20%
			WB	50	280	160	15%	25%
21	Fung Nam Road	Between Tin Ping Road and Access Road	NB	50	490	280	10%	20%
			SB	50	540	440	20%	25%
22	Tin Ping Road	Between Fung Nam Road and Lung Sum Avenue	EB	50	550	310	10%	20%
			WB	50	500	440	20%	30%
23	Access Road	Near Ng Tung River	EB	50	10	10	20%	20%
			WB	50	10	10	20%	20%
24	Fanling Bypass Eastern Section	Between FLN L3 and Access Road	EB	80	1320	1020	20%	20%
			WB	80	1090	1450	20%	15%
25	Access Road	Near Ng Tung River	EB	50	20	20	20%	20%
			WB	50	20	20	20%	20%
26	Fanling Bypass Eastern Section	Between Access Road and Sha Tau Kok Road	EB	80	1280	980	20%	20%
			WB	80	1080	1360	20%	15%
27	Fanling Bypass Eastern Section	Near Sha Tau Kok Road	EB	80	990	700	15%	20%
			WB	80	730	1030	20%	15%
28	Fanling Bypass Eastern Section Slip Road	Near Sha Tau Kok Road	EB	50	380	330	25%	25%
29	Fanling Bypass Eastern Section Slip Road	Near Sha Tau Kok Road	WB	50	380	340	25%	25%
30	FLN Road L4	Between Road Lung Sam Avenue and Road L3	EB	50	750	420	10%	20%
			WB	50	410	510	20%	15%
31	FLN Road L3	Between Road L4 and Fanling Bypass	NB	50	660	440	15%	20%
			SB	50	550	760	15%	15%
32	FLN Road L4	Between Road L3 and Road L1	EB	50	880	740	15%	15%
			WB	50	760	430	20%	20%

33	FLN Road L1	Between Road L4 and Road L2	EB	50	300	200	15%	15%
			WB	50	330	360	15%	15%
34	FLN Road L1	Between Road L4 and Road L1 Access Road	EB	50	610	560	10%	15%
			WB	50	440	360	15%	20%
35	FLN Road L1 Access Road	Between Road L4 and Mia Sik Road	EB	50	390	320	20%	15%
			WB	50	360	280	10%	15%
36	FLN Road L1	Between Road L1 Access Road and Ma Sik Road	EB	50	660	530	15%	20%
			WB	50	210	330	15%	10%
37	FLN Road L2	-	EB	50	240	180	15%	20%
			WB	50	350	170	15%	25%
38	Ma Sik Road	Between Tin Ping Road and Road L3	EB	50	1160	1170	25%	25%
			WB	50	1210	1010	20%	25%
39	FLN Road L3	Between Road L4 and Ma Sik Road	NB	50	410	440	20%	25%
			SB	50	510	400	15%	20%
40	Ma Sik Road	Between L3 and Road L1	EB	50	970	920	25%	25%
			WB	50	920	820	25%	25%
41	FLN Road L1	Between Road L2 and Ma Sik Road	EB	50	310	550	15%	15%
			WB	50	470	350	20%	25%
42	Fan Leng Lau Road	Between Ma Sik Road and Wo Muk Road	NB	50	530	560	25%	20%
			SB	50	400	270	25%	30%
43	Ma Sik Road	Between Fan Leng Lau Road and Luen Chit Street	EB	50	720	590	25%	30%
			WB	50	350	400	25%	25%
44	Ma Sik Road	Between Luen Chit Street and Wo Tai Street	EB	50	440	380	30%	30%
			WB	50	130	170	30%	30%
45	Ma Sik Road	Between Wo Tai Street and Sha Tau Kok Road	EB	50	1080	950	20%	25%
			WB	50	460	410	20%	15%
46	Wo Muk Road	Between Fan Leng Lau Road and Luen Hing Street	EB	50	300	300	30%	30%
			WB	50	470	420	25%	25%
47	Wo Muk Road	Between Luen Hing Street and Luen Chit Street	EB	50	330	180	30%	30%
			WB	50	370	330	30%	30%
48	Luen Chit Street	Between Ma Sik Road and Wo Muk Road	NB	50	170	250	30%	25%
			SB	50	190	280	25%	20%
49	Wo Muk Road	Between Luen Chit Street and Wo Tai Street	EB	50	340	240	35%	30%
			WB	50	320	330	30%	25%
50	Wo Tai Street	Between Wo Muk Road and Wo Mun Street	NB	50	530	660	30%	30%
			SB	50	180	140	25%	30%
51	Wo Mun Street	Between Wo Tai Street and Wo Muk Road	EB	50	580	480	25%	25%
52	Wo Tai Street	Between Ma Sik Road and Wo Wo Mun Street	NB	50	240	290	25%	20%
			SB	50	450	190	15%	15%
53	Man Kam To Road	Between Fanling Bypass Western Section and Fu Tei Au Road	NB	50	810	730	35%	35%
			SB	50	800	830	35%	35%
54	Access Road	West to Man Kam To Road	EB	50	130	120	35%	30%
			WB	50	130	120	35%	35%
55	Po Wan Road	Between Man Kok Village Access Road and Chuk Wan Street	EB	50	490	240	30%	30%
			WB	50	270	220	25%	35%

Remark:

(1) Refer to Link Index Plan
(2) Round to nearest 10
(3) Round to nearest 5%

Year 2046 Link Flow

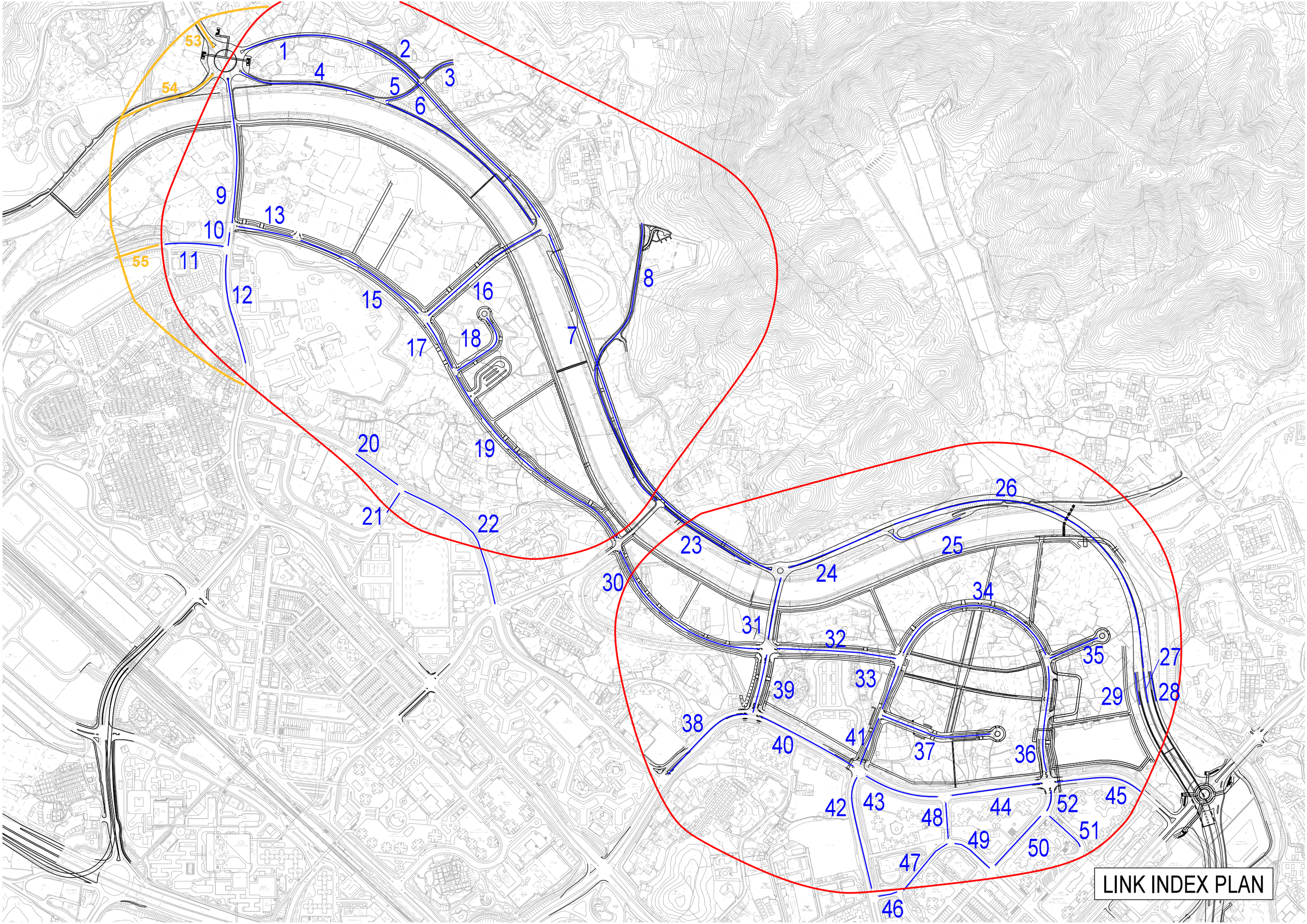
Index[1]	Road	Design Traffic Speed (km/hr)	Flow (Veh/hr) [2]		Heavy Vehicle % [3]	
			AM	PM	AM	PM
56	Roundabout of Man Kam To Rd / Fanling Bypass Western	50	1050	1200	35%	35%
57	Roundabout of Man Kam To Rd / Fanling Bypass Western	50	1050	1100	30%	25%
58	Roundabout of Man Kam To Rd / Fanling Bypass Western	50	1050	1060	25%	35%
59	Roundabout of Man Kam To Rd / Fanling Bypass Western	50	1060	940	30%	35%
60	Roundabout of Man Kam To Rd / Fanling Bypass Western	50	1050	970	35%	30%
61	Roundabout of Fanling Bypass / FLN Road L3	50	1340	1150	20%	30%
62	Roundabout of Fanling Bypass / FLN Road L3	50	1170	1460	20%	15%
63	Roundabout of Fanling Bypass / FLN Road L3	50	1300	1190	15%	20%

Remark:

(1) Refer to Link Index Plan

(2) Round to nearest 10

(3) Round to nearest 5%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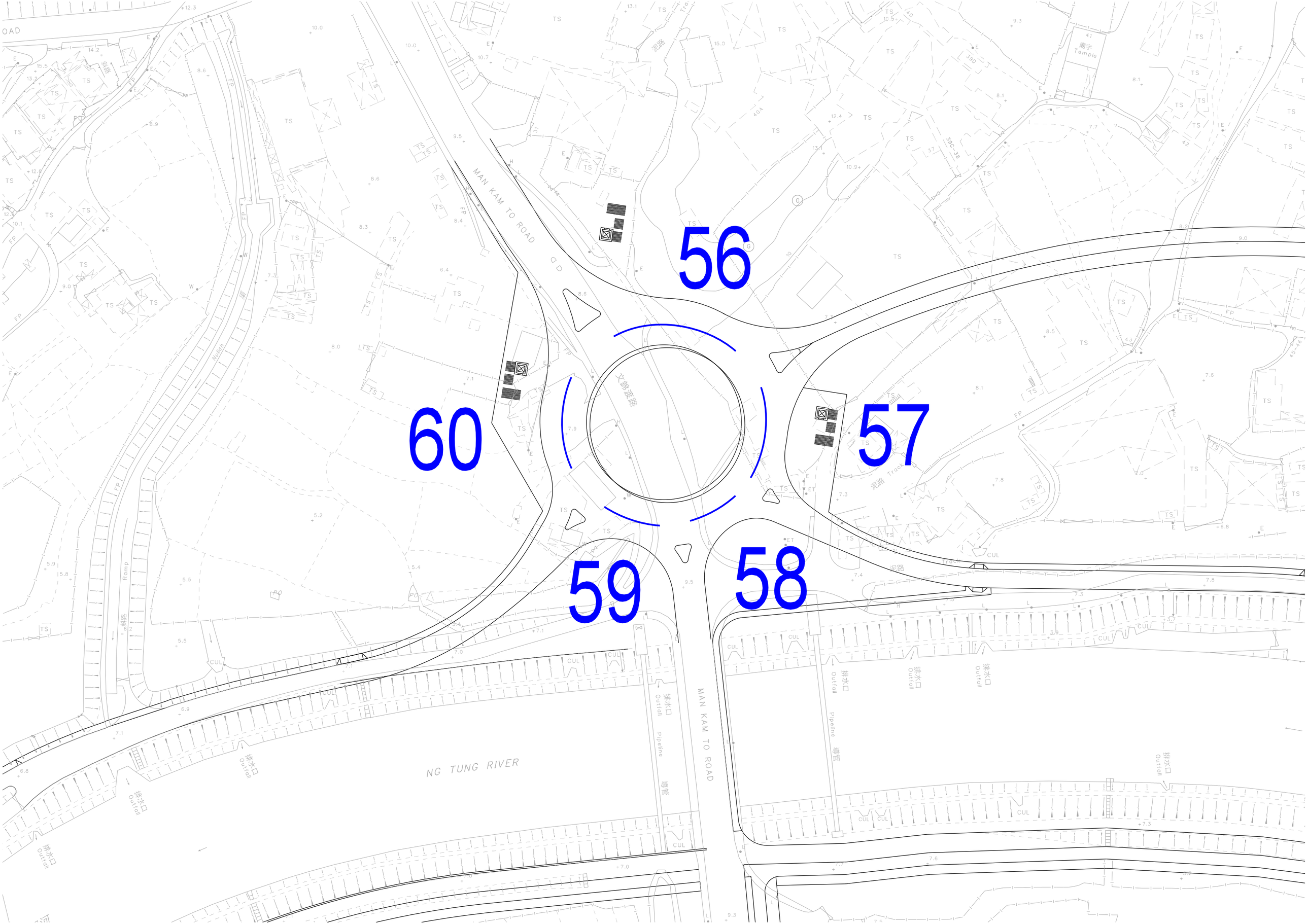
LINK INDEX PLAN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MAN KAM TO ROAD
NG TUNG RIVER
文錦渡路
排水口
Outfall
Pipeline
導管
Ramp
Nullah
Temple
CUL
TS
FP

61

63

62

梧桐河

NG TUNG RIVER

烏鴉落陽
WU NGA LOK YEUNG

Nullah

ANNEX 3.2

DETAILS OF ROAD TRAFFIC NOISE IMPACTS ON NSRS (RESIDENTIAL) IN FLN NDA AT YEAR 2046

Scenario 1 (Base Case)

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																					
Floor	RA101	RA102	RA201	RA202	RA203	RB101	RB102	RB201	RB301	RB302	RC101	RC102	RC103	RC104	RC105	RC201	RC202	RD101	RD201	RD202	RD203	RD301
1	70.1	72.6	69.2	70.0	66.6	64.3	55.2	51.2	63.6	58.3	52.2	56.2	66.4	64.7	53.8	54.6	57.4	60.0	63.5	69.7	66.6	56.1
2	69.9	72.3	69.1	70.0	66.5	64.4	59.5	55.0	63.7	60.5	54.5	60.7	66.6	67.4	56.8	58.4	61.2	61.8	65.0	70.4	69.2	60.5
3	69.5	71.9	68.9	69.9	66.5	64.5	61.2	55.9	63.7	60.5	55.7	61.2	66.6	67.4	59.0	60.6	63.1	62.1	65.0	70.3	69.2	64.0
4	69.1	71.4	68.6	69.8	66.4	64.6	61.8	56.5	63.8	60.6	57.0	61.9	66.7	67.4	61.2	62.9	64.9	62.5	64.9	70.1	69.0	67.0
5	68.7	71.0	68.4	69.7	66.4	64.6	62.0	57.0	63.8	60.8	58.3	62.8	66.8	67.3	64.0	65.7	66.7	62.7	64.9	69.9	68.9	68.3
6	68.3	70.6	68.1	69.6	66.3	64.6	62.1	57.4	63.8	60.9	59.4	63.5	66.9	67.3	66.2	67.2	68.3	62.9	64.9	69.8	68.7	68.6
7	68.0	70.3	67.9	69.5	66.2	64.6	62.2	57.8	63.8	61.0	60.4	64.0	67.0	67.4	66.9	67.5	68.8	62.9	64.8	69.6	68.5	68.7
8	67.7	70.0	67.7	69.3	66.1	64.6	62.2	58.3	63.8	61.0	61.2	64.5	67.0	67.4	67.0	67.6	68.8	62.9	64.8	69.5	68.4	68.5
9	67.4	69.8	67.4	69.2	66.1	64.7	62.2	58.8	63.8	61.1	61.7	64.8	67.0	67.4	66.9	67.5	68.8	62.9	64.8	69.3	68.2	68.4
10	67.1	69.5	67.2	69.1	66.0	64.6	62.2	59.1	63.8	61.1	62.1	65.0	67.0	67.4	66.9	67.4	68.7	62.9	64.7	69.2	68.1	68.2
11	66.9	69.3	67.0	69.0	66.0	64.7	62.3	59.5	63.8	61.1	62.4	65.2	67.0	67.3	66.7	67.3	68.6	62.9	64.7	69.0	67.9	68.0
12						64.6	62.3	59.6	63.8	61.1	62.6	65.3	66.9	67.2	66.6	67.2	68.4	62.8	64.6	68.9	67.8	67.9
13						64.6	62.3	59.8	63.7	61.1	62.8	65.4	66.9	67.2	66.5	67.1	68.4	62.8	64.6	68.8	67.7	67.8
14						64.6	62.3	59.9	63.7	61.2	62.8	65.5	66.8	67.1	66.4	67.0	68.2	62.8	64.5	68.7	67.6	67.7
15						64.6	62.3	59.9	63.7	61.2	62.8	65.6	66.8	67.1	66.3	66.9	68.1	62.8	64.5	68.6	67.4	67.5
16						64.6	62.4	60.0	63.7	61.1	62.9	65.6	66.7	67.0	66.2	66.8	68.0	62.7	64.5	68.5	67.3	67.4
17						64.6	62.4	60.1	63.7	61.2	62.9	65.7	66.7	66.9	66.1	66.7	67.9	62.7	64.4	68.3	67.2	67.3
18						64.6	62.4	60.2	63.7	61.2	62.9	65.8	66.6	66.9	66.0	66.6	67.8	62.7	64.4	68.3	67.1	67.1
19						64.6	62.4	60.3	63.7	61.2	62.8	65.9	66.5	66.8	65.8	66.5	67.7	62.7	64.3	68.2	67.0	67.1
20						64.6	62.4	60.5	63.6	61.2	62.8	65.9	66.5	66.8	65.8	66.5	67.6	62.6	64.3	68.1	66.9	66.9
21						64.6	62.4	60.6	63.6	61.2	62.8	65.9	66.4	66.7	65.7	66.4	67.5	62.6	64.2	68.0	66.7	66.9
22						64.6	62.4	60.6	63.6	61.2	62.7	65.9	66.3	66.6	65.5	66.3	67.4	62.6	64.2	67.9	66.7	66.8
23						64.6	62.4	60.7	63.6	61.2	62.7	65.9	66.3	66.6	65.5	66.2	67.3	62.5	64.1	67.8	66.6	66.7
24						64.5	62.4	60.8	63.6	61.2	62.7	65.8	66.2	66.5	65.4	66.2	67.2	62.5	64.1	67.7	66.5	66.6
25											62.7	65.8	66.2	66.4	65.3	66.1	67.2					66.5
26											62.6	65.8	66.1	66.4	65.2	66.0	67.1					
27											62.6	65.7	66.1	66.3	65.1	66.0	67.0					
28											62.6	65.7	66.0	66.2	65.0	65.9	66.9					
29											62.6	65.6	65.9	66.2	64.9	65.8	66.9					
30											62.5	65.6	65.9	66.1	64.9	65.7	66.8					
31											62.5	65.6	65.8	66.0	64.8	65.7	66.7					
32											62.5	65.5	65.8	66.0	64.7	65.6	66.6					
33											62.6	65.5	65.7	65.9	64.6	65.6	66.6					
34											62.7	65.5	65.7	65.8	64.6	65.5	66.5					
35											62.8	65.4	65.6	65.8	64.5	65.4	66.4					

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																			
Floor	RE101	RE102	RE201	RE202	RE203	RE204	RE205	RF101	RF102	RF201	RF202	RG101	RG102	RG201	RG202	RG203	RH101	RH201	RH202	RH301
1	55.2	51.9	54.5	62.1	67.0	57.2	54.1	61.1	68.5	67.9	50.4	58.3	54.3	62.9	50.4	54.2	60.4	61.3	61.7	51.4
2	59.2	55.6	59.0	67.4	69.0	63.9	58.2	68.3	68.4	67.9	53.5	64.5	58.4	65.6	53.4	56.5	64.1	65.1	67.7	57.0
3	60.9	57.2	62.7	68.0	68.9	67.5	62.9	69.9	68.4	67.8	55.1	67.8	60.9	65.7	56.9	57.7	66.0	67.1	69.8	59.0
4	62.1	58.8	64.9	68.5	68.7	68.0	65.0	69.9	68.3	67.8	56.6	68.6	62.5	65.8	60.2	59.5	66.3	67.4	70.0	59.9
5	63.4	60.8	65.5	68.6	68.6	68.1	65.5	69.8	68.3	67.8	58.3	68.9	63.3	65.8	61.7	61.4	66.3	67.3	69.9	60.4
6	64.3	63.1	65.5	68.6	68.4	68.2	65.7	69.5	68.2	67.8	59.5	68.8	63.9	65.7	62.7	62.4	66.2	67.2	69.7	61.1
7	65.5	64.9	65.4	68.4	68.3	68.1	65.8	69.3	68.2	67.8	60.3	68.7	64.5	65.7	63.6	62.8	66.1	67.1	69.5	61.4
8	66.6	65.5	65.3	68.3	68.1	68.1	65.8	69.1	68.1	67.7	60.8	68.5	64.9	65.6	64.0	63.0	65.9	67.1	69.4	61.5
9	67.1	65.7	65.2	68.2	67.9	68.0	65.7	68.9	68.1	67.7	61.2	68.3	65.2	65.5	64.3	63.2	65.7	67.1	69.2	61.6
10	67.2	65.6	65.1	68.0	67.9	67.9	65.6	68.7	68.0	67.7	61.4	68.2	65.4	65.5	64.4	63.3	65.6	66.9	69.0	61.8
11	67.3	65.6	65.0	67.9	67.7	67.8	65.5	68.5	68.0	67.7	61.6	68.0	65.5	65.4	64.5	63.2	65.5	66.9	68.8	61.9
12	67.2	65.5	64.8	67.8	67.6	67.7	65.4	68.3	67.9	67.6	61.6	67.8	65.6	65.4	64.5	63.2	65.4	66.8	68.7	62.2
13	67.1	65.4	64.7	67.7	67.5	67.6	65.3	68.1	67.9	67.6	61.7	67.7	65.8	65.3	64.5	63.2	65.2	66.6	68.5	62.4
14	67.0	65.3	64.6	67.6	67.3	67.5	65.2	68.0	67.8	67.6	61.8	67.5	65.9	65.3	64.5	63.2				
15	66.9	65.2	64.5	67.5	67.2	67.4	65.0	67.8	67.8	67.5	61.7	67.4	66.0	65.2	64.4	63.1				
16	66.8	65.1	64.4	67.3	67.1	67.3	64.9	67.7	67.7	67.5	61.7	67.3	66.0	65.2	64.4	63.1				
17	66.7	65.0	64.3	67.3	67.0	67.2	64.8	67.5	67.6	67.5	61.7	67.1	66.0	65.1	64.3	63.1				
18	66.6	64.9	64.2	67.1	66.9	67.1	64.7	67.4	67.6	67.4	61.6	67.0	65.9	65.1	64.3	63.1				
19	66.5	64.8	64.1	67.0	66.7	66.9	64.6	67.3	67.5	67.4	61.5	66.8	65.9	65.0	64.3	63.1				
20	66.4	64.7	64.1	66.9	66.6	66.8	64.5	67.1	67.5	67.4	61.5	66.8	65.8	65.0	64.2	63.1				
21	66.4	64.7	64.0	66.8	66.5	66.8	64.3	67.0	67.4	67.3	61.4	66.6	65.8	64.9	64.3	63.2				
22	66.3	64.5	63.9	66.7	66.4	66.7	64.2	66.9	67.3	67.3	61.3	66.5	65.8	64.9	64.3	63.4				
23	66.2	64.5	63.8	66.6	66.3	66.6	64.1	66.7	67.3	67.3	61.3	66.4	65.7	64.9	64.3	63.5				
24	66.1	64.4	63.7	66.6	66.2	66.5	64.1	66.6	67.2	67.2	61.3	66.3	65.7	64.8	64.4	63.7				
25	66.1	64.3	63.7	66.5	66.1	66.3	64.0					66.2	65.6	64.8	64.5	64.0				
26	66.0	64.2	63.6	66.4	66.0	66.3	63.9					66.1	65.6	64.8	64.7	64.4				
27	65.9	64.2	63.6	66.3	65.9	66.2	63.8					65.9	65.6	64.8	64.8	64.7				
28	65.9	64.1	63.5	66.2	65.8	66.1	63.7					65.9	65.5	64.7	64.9	65.0				
29	65.8	64.0	63.4	66.2	65.7	66.0	63.7					65.8	65.5	64.7	65.1	65.2				
30	65.7	64.0	63.4	66.1	65.7	65.9	63.6					65.7	65.5	64.6	65.2	65.4				
31	65.7	63.9	63.3	66.0	65.6	65.9	63.6					65.6	65.4	64.6	65.4	65.5				
32	65.6	63.8	63.3	65.9	65.5	65.8	63.6													
33	65.5	63.8	63.2	65.9	65.4	65.7	63.6													
34																				
35																				

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																			
Floor	RI101	RI102	RI201	RI202	RI301	RJ101	RJ201	RJ202	RJ203	RK101	RK102	RK103	RK104	RK105	RK106	RK107	RK201	RK202	RK203	RK204
1	67.9	65.0	68.0	63.1	68.3	69.4	66.2	71.1	67.5	67.0	61.5	59.4	64.7	62.8			66.7	68.9	60.3	
2	67.9	64.7	68.0	62.9	68.3	69.4	66.2	71.0	67.6	67.3	63.6	62.8	68.1	66.5			67.0	70.1	64.7	
3	67.9	64.4	68.0	62.6	68.3	69.3	66.2	70.8	67.6	67.6	64.8	64.7	69.4	68.0			67.2	69.9	66.8	
4	67.9	64.1	68.0	62.3	68.3	69.3	66.2	70.7	67.6	67.9	65.8	65.9	69.8	68.7			67.4	69.7	68.1	
5	67.9	63.8	68.0	62.1	68.3	69.3	66.1	70.5	67.5	68.1	66.6	66.6	70.0	69.2			67.5	69.5	68.5	
6	67.9	63.5	68.0	61.8	68.3	69.3	66.0	70.2	67.5	68.3	67.3	67.2	70.2	69.3			67.6	69.3	68.4	
7	67.9	63.2	68.0	61.6	68.3	69.2	66.0	70.0	67.3	68.5	67.7	67.5	70.3	69.2			67.7	69.1	68.3	
8	67.9	63.0	68.0	61.4	68.3	69.2	65.8	69.7	67.2	68.7	67.9	67.6	70.4	69.1			67.8	68.9	68.2	
9	67.9	62.8	67.9	61.6	68.2	69.1	65.7	69.5	67.1	68.8	67.9	67.6	70.4	69.0			67.8	68.7	68.1	
10	67.8	62.6	67.9	61.7	68.2	69.1	65.6	69.3	67.0	68.9	67.9	67.6	70.4	68.9			67.9	68.4	67.9	
11	67.8	62.5	67.9	61.7	68.2	69.0	65.5	69.1	66.9	68.9	67.9	67.6	70.3	68.8			67.9	68.2	67.8	
12	67.8	62.4	67.9	61.6	68.1	69.0	65.4	68.9	66.8	68.9	67.8	67.5	70.2	68.6			67.9	68.1	67.7	
13	67.8	62.3	67.8	61.5	68.1	69.0	65.3	68.7	66.8	68.9	67.8	67.5	70.1	68.5			67.9	67.9	67.5	
14	67.7	62.2	67.8	61.4	68.1	68.9	65.2	68.5	66.8	68.9	67.8	67.5	70.0	68.3			67.9	67.7	67.4	
15	67.7	62.2	67.8	61.3	68.1	68.9	65.1	68.3	66.8	68.9	67.9	67.5	69.8	68.2			67.9	67.5	67.3	
16	67.7	62.1	67.7	61.3	68.0	68.8	65.0	68.1	66.9	68.9	67.9	67.5	69.7	68.1			67.9	67.3	67.1	
17	67.6	62.0	67.7	61.2	68.0	68.8	65.0	68.0	67.0	68.9	67.9	67.5	69.6	68.0			67.9	67.2	67.0	
18	67.6	62.0	67.7	61.2	67.9	68.7	64.9	67.9	67.1	68.8	67.9	67.5	69.5	67.9			67.9	67.0	66.9	
19										68.8	67.9	67.4	69.4	67.8			67.9	66.8	66.8	
20										68.8	67.8	67.4	69.3	67.7			67.8	66.7	66.6	
21										68.7	67.8	67.4	69.2	67.6			67.8	66.5	66.5	
22										68.7	67.8	67.3	69.1	67.5			67.8	66.4	66.4	
23										68.6	67.7	67.3	69.0	67.3			67.8	66.3	66.3	
24										68.6	67.7	67.2	68.9	67.2			67.8	66.1	66.1	
25										68.6	67.6	67.2	68.8	67.1			67.7	66.0	66.0	
26										68.6	67.6	67.1	68.7	67.0			67.7	65.9	65.9	
27																				
28																				
29																				
30																				
31																				
32																				
33																				
34																				
35																				

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																					
Floor	RL101	RL102	RL103	RL104	RL105	RM101	RM102	RM201	RM301	RN101	RN201	RN301	RN401	RO101	RO201	RO301	RP101	RP201	RP202	RP301	RP302	RP401
1	65.6	61.5	63.3	59.2		66.7	69.5	66.9	63.3	62.9	62.5	67.8	68.3	64.6	67.7		63.5	65.2	66.7	67.6	70.2	69.3
2	66.4	64.5	66.5	61.0		66.7	69.5	67.5	64.2	63.8	63.5	68.2	69.0	65.5	67.6		63.9	65.4	67.8	68.4	70.7	70.2
3	66.7	65.2	66.5	61.6		66.7	69.4	67.8	65.1	64.7	64.3	68.9	69.7	66.0	67.5		64.3	65.7	68.2	68.8	71.0	70.7
4	67.0	65.4	66.4	61.9		66.7	69.2	67.9	65.8	65.6	65.3	69.3	69.7	66.3	67.2		64.7	66.1	68.3	68.9	71.0	70.9
5	67.2	65.6	66.4	62.1		66.7	69.0	68.1	66.4	66.3	65.9	69.2	69.5	66.6	67.0		65.4	66.7	68.3	69.0	70.9	70.9
6	67.4	65.7	66.5	62.4		66.6	68.8	68.1	66.8	66.7	66.5	69.0	69.2	66.9	66.8		66.1	67.3	68.4	69.1	70.8	70.9
7	67.6	65.8	66.5	62.5		66.6	68.5	67.9	67.2	67.2	66.9	68.7	68.8	67.1	66.6		66.8	67.8	68.4	69.2	70.7	70.7
8	67.7	65.9	66.4	62.7		66.5	68.3	67.7	67.5	67.5	67.3	68.4	68.5	67.3	66.4		67.3	68.1	68.6	69.2	70.5	70.6
9	67.8	66.0	66.4	62.9		66.5	68.1	67.5	67.7	67.7	67.6	68.1	68.1	67.5	66.2		67.5	68.2	68.6	69.2	70.4	70.4
10	67.9	66.1	66.3	63.1		66.4	67.8	67.3	67.9	68.0	67.8	67.9	67.8	67.7	66.0		67.6	68.3	68.7	69.1	70.3	70.3
11	67.9	66.1	66.2	63.2		66.4	67.6	67.1	68.0	68.1	67.9	67.6	67.6	67.8	65.8		67.6	68.4	68.7	69.0	70.2	70.2
12	68.0	66.1	66.2	63.3		66.3	67.4	66.9	68.1	68.2	68.1	67.3	67.3	68.0	65.6		67.7	68.4	68.7	69.0	70.0	70.0
13	68.0	66.2	66.1	63.4		66.2	67.2	66.6	68.2	68.3	68.2	67.0	67.0	68.1	65.4		67.7	68.4	68.6	68.9	69.9	69.9
14	68.1	66.2	66.0	63.4		66.1	67.0	66.5	68.3	68.4	68.3	66.9	66.8	68.1	65.3		67.7	68.4	68.6	68.9	69.7	69.7
15	68.0	66.2	65.9	63.5		66.1	66.8	66.3	68.3	68.4	68.3	66.6	66.6	68.2	65.1		67.7	68.4	68.5	68.8	69.6	69.6
16	68.1	66.2	65.8	63.6		66.0	66.6	66.1	68.3	68.4	68.4	66.4	66.4	68.2	65.0		67.6	68.3	68.4	68.7	69.5	69.5
17	68.1	66.2	65.7	63.6		65.9	66.4	65.9	68.3	68.4	68.4	66.2	66.2	68.3	64.8		67.6	68.2	68.3	68.7	69.3	69.3
18	68.0	66.2	65.6	63.7		65.8	66.3	65.7	68.3	68.5	68.4	66.1	66.0	68.3	64.7		67.7	68.2	68.2	68.7	69.2	69.2
19	68.0	66.2	65.5	63.7		65.7	66.1	65.5	68.3	68.5	68.4	65.9	65.8	68.3	64.6		67.7	68.2	68.1	68.6	69.1	69.1
20	68.0	66.2	65.4	63.7		65.7	66.0	65.4	68.3	68.5	68.5	65.7	65.7	68.3	64.4		67.6	68.1	68.0	68.5	68.9	69.0
21	68.0	66.2	65.3	63.7										68.3	64.3		67.6	68.1	68.0	68.4	68.8	68.8
22	68.0	66.2	65.2	63.7										68.3	64.3		67.6	68.0	67.9	68.3	68.7	68.7
23	68.0	66.1	65.1	63.8										68.3	64.3		67.5	67.9	67.8	68.3	68.6	68.6
24	67.9	66.1	65.0	63.7										68.3	64.2		67.4	67.8	67.8	68.2	68.4	68.5
25	67.9	66.1	64.9	63.7										68.2	64.2		67.4	67.8	67.7	68.1	68.4	68.4
26	67.9	66.0	64.9	63.7										68.2	64.2		67.3	67.7	67.6	68.0	68.2	68.3
27														68.2	64.1		67.2	67.6	67.5	67.9	68.2	68.2
28														68.2	64.1		67.2	67.5	67.5	67.8	68.0	68.0
29														68.1	64.1		67.2	67.4	67.4	67.7	67.9	67.9
30																	67.1	67.4	67.3	67.6	67.8	67.8
31																	67.1	67.3	67.3	67.6	67.7	67.7
32																						
33																						
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Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																			
Floor	RQ101	RQ102	RQ201	RQ202	RQ203	RQ204	RQ205	RR101	RR102	RR201	RR202	RR301	RR401	RS101	RS102	RS201	RS202	RT101	RT201	RT202	RT301
1	62.4	57.2	55.7	56.3	54.1	55.5	53.2	58.0	56.8	64.2	55.8	51.2	51.8	55.1	55.7	51.0	56.3	50.9	50.9	58.9	57.3
2	64.7	62.1	59.6	62.9	60.3	62.4	57.0	63.3	61.8	71.3	61.1	55.6	55.5	57.1	58.7	53.3	62.0	53.6	54.3	64.5	63.8
3	65.3	63.7	62.0	65.6	64.6	65.6	59.9	65.5	65.0	71.7	64.0	58.8	57.9	58.5	60.3	55.3	64.1	55.0	56.5	66.3	64.9
4	65.8	64.1	64.4	66.0	65.7	66.1	61.7	66.6	66.2	71.6	66.0	60.4	59.5	60.6	62.0	58.4	64.9	55.9	57.2	66.8	65.4
5	66.2	64.5	65.8	66.0	65.8	66.1	63.0	67.2	66.8	71.4	67.0	61.6	60.7	63.0	63.9	61.4	65.9	56.7	57.7	66.7	65.4
6	66.4	64.9	66.0	66.1	65.7	65.9	64.3	67.9	67.5	71.3	67.2	62.5	61.8	64.7	65.0	62.9	66.5	57.8	58.3	66.6	65.3
7	66.5	65.1	66.2	66.2	65.6	65.7	65.2	68.4	68.0	71.1	67.3	63.1	62.4	65.6	65.7	63.5	66.8	58.9	59.0	66.5	65.2
8	66.5	65.2	66.2	66.5	65.4	65.5	65.5	68.6	68.3	70.9	67.3	63.7	62.7	66.1	66.1	64.2	67.0	59.3	59.9	66.4	65.0
9	66.5	65.3	66.3	66.6	65.3	65.4	65.6	68.6	68.3	70.8	67.3	64.2	63.0	66.3	66.3	64.5	67.0	59.6	61.0	66.3	65.0
10	66.4	65.2	66.3	66.6	65.1	65.2	65.6	68.5	68.3	70.6	67.5	64.8	63.3	66.3	66.3	64.5	66.9	59.8	62.1	66.3	64.9
11	66.4	65.2	66.2	66.5	64.9	65.0	65.6	68.5	68.3	70.4	67.5	65.3	63.7	66.3	66.2	64.5	66.9	60.0	63.1	66.2	64.8
12	66.4	65.2	66.2	66.4	64.7	64.9	65.5	68.4	68.2	70.3	67.6	65.7	64.1	66.2	66.2	64.4	66.7	60.3	63.7	66.1	64.7
13	66.5	65.2	66.1	66.3	64.6	64.7	65.4	68.3	68.1	70.1	67.6	66.0	64.5	66.0	66.1	64.3	66.6	60.6	64.1	66.0	64.6
14	66.4	65.2	66.1	66.2	64.4	64.6	65.3	68.2	68.0	70.0	67.6	66.2	64.8	65.9	65.9	64.2	66.4	61.0	64.4	65.9	64.5
15	66.3	65.2	66.0	66.0	64.3	64.5	65.1	68.1	67.9	69.8	67.6	66.2	65.0	65.8	65.9	64.1	66.3	61.4	64.6	65.8	64.4
16	66.3	65.1	66.0	65.9	64.1	64.3	65.0	68.0	67.8	69.7	67.5	66.3	65.1	65.7	65.8	63.9	66.1	61.9	64.7	65.7	64.3
17	66.3	65.0	65.9	65.8	64.0	64.2	64.9	67.9	67.7	69.5	67.4	66.2	65.1	65.6	65.7	63.8	66.0	62.3	64.7	65.6	64.2
18	66.3	65.0	65.9	65.7	63.9	64.1	64.8	67.8	67.6	69.4	67.3	66.2	65.1	65.4	65.6	63.7	65.8	62.7	64.7	65.5	64.1
19	66.3	65.0	65.8	65.6	63.8	63.9	64.7	67.7	67.5	69.3	67.2	66.1	65.1	65.3	65.5	63.7	65.8	63.0	64.7	65.3	64.0
20	66.2	65.0	65.7	65.5	63.7	63.8	64.6	67.6	67.5	69.1	67.1	66.1	65.1	65.3	65.5	63.8	65.7	63.2	64.7	65.2	63.9
21	66.2	65.0	65.7	65.4	63.6	63.7	64.5	67.5	67.4	69.0	66.9	65.9	65.0	65.3	65.5	63.8	65.6	63.4	64.6	65.1	63.8
22	66.1	65.0	65.6	65.4	63.4	63.6	64.5	67.4	67.3	68.9	66.8	65.9	65.0	65.3	65.5	63.9	65.6	63.6	64.6	65.1	63.8
23	66.1	64.9	65.6	65.3	63.3	63.5	64.4	67.3	67.2	68.8	66.7	65.8	64.9	65.4	65.6	63.8	65.5	63.7	64.6	65.0	63.7
24	66.0	64.9	65.5	65.2	63.2	63.4	64.3	67.2	67.1	68.7	66.6	65.7	64.8	65.5	65.6	63.9	65.4	63.8	64.6	64.9	63.6
25	66.0	64.9	65.4	65.1	63.1	63.3	64.2	67.1	67.0	68.5	66.5	65.6	64.7	65.7	65.7	64.0	65.4	63.9	64.6	64.8	63.6
26	65.9	64.8	65.4	65.0	63.0	63.2	64.2	67.0	66.9	68.4	66.4	65.5	64.7	65.8	65.8	64.3	65.5	64.0	64.5	64.7	63.5
27	65.9	64.8	65.4	64.9	62.9	63.1	64.1	67.0	66.8	68.3	66.3	65.4	64.6	65.9	65.9	64.6	65.7	64.0	64.5	64.6	63.5
28	65.8	64.8	65.3	64.9	62.8	63.0	64.0	66.9	66.7	68.2	66.2	65.3	64.5	66.0	65.9	64.7	65.8	64.1	64.5	64.5	63.4
29	65.8	64.8	65.3	64.8	62.7	62.9	64.0	66.8	66.7	68.1	66.1	65.2	64.4								
30	65.9	64.8	65.3	64.7	62.6	62.7	63.9	66.7	66.6	68.0	65.9	65.1	64.4								
31	65.9	64.7	65.3	64.7	62.5	62.6	63.9	66.6	66.5	68.0	65.8	65.0	64.3								
32	65.9	64.7	65.3	64.6	62.5	62.6	63.8	66.5	66.4	67.9	65.8	64.9	64.2								
33								66.5	66.3	67.8	65.7	64.8	64.2								
34								66.4	66.3	67.7	65.6	64.7	64.1								
35																					

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)															
Floor	RU101	RU102	RU201	RU202	RU301	RV101	RV201	RV301	RW101	RW102	RW201	RW202	RW301	RW302	RW401	RW402
1	54.9	56.9	54.5	50.8	47.0	51.7	52.7	56.7	68.6	56.6	58.4	65.0	63.2	52.9	48.2	67.5
2	60.7	62.4	59.1	55.1	48.8	55.6	56.7	63.3	68.3	62.3	63.8	70.1	69.1	58.1	50.5	67.2
3	63.5	64.9	61.8	59.2	51.3	60.2	60.4	64.7	68.0	67.1	66.6	70.4	69.4	60.5	52.6	66.9
4	64.2	66.4	63.7	60.5	54.1	63.7	62.3	64.8	67.8	68.0	68.0	70.3	69.4	62.4	54.4	66.5
5	64.4	67.3	65.2	62.2	55.4	64.8	62.8	64.8	67.6	68.3	69.1	70.2	69.3	63.8	55.7	66.3
6	64.6	67.5	66.4	63.8	56.3	65.0	63.1	64.8	67.4	68.2	69.7	70.1	69.2	64.5	56.6	66.0
7	64.8	67.5	66.8	64.4	57.4	65.0	63.4	64.8	67.2	68.2	69.9	69.9	69.1	64.7	57.4	65.8
8	64.8	67.4	66.9	64.8	58.8	64.8	63.5	64.8	67.0	68.1	69.9	69.8	69.0	64.7	57.9	65.5
9	64.9	67.3	66.9	64.9	60.1	64.7	63.8	64.8	66.9	68.0	69.8	69.7	68.8	64.6	58.5	65.3
10	64.8	67.2	66.8	65.2	61.3	64.6	64.0	64.7	66.7	67.9	69.7	69.5	68.7	64.6	59.2	65.1
11	64.7	67.1	66.7	65.3	62.1	64.6	64.1	64.6	66.6	67.8	69.5	69.5	68.6	64.5	60.0	64.9
12	64.7	67.0	66.6	65.4	62.5	64.7	64.2	64.6	66.5	67.7	69.4	69.3	68.5	64.4	60.6	64.8
13	64.6	66.9	66.5	65.5	62.8	64.8	64.2	64.5	66.4	67.7	69.3	69.2	68.4	64.4	61.2	64.6
14	64.5	66.8	66.5	65.5	63.1	64.9	64.2	64.4	66.3	67.6	69.2	69.1	68.3	64.4	61.7	64.5
15	64.5	66.7	66.4	65.4	63.2	64.8	64.2	64.4	66.2	67.5	69.1	69.0	68.2	64.3	62.1	64.4
16	64.4	66.6	66.3	65.3	63.2	64.8	64.2	64.3	66.0	67.4	68.9	68.9	68.1	64.2	62.4	64.2
17	64.3	66.5	66.3	65.2	63.3	64.8	64.2	64.3	65.9	67.3	68.8	68.8	68.0	64.2	62.5	64.1
18	64.3	66.4	66.2	65.1	63.4	64.7	64.1	64.2	65.8	67.2	68.7	68.7	67.9	64.1	62.6	64.0
19	64.2	66.3	66.1	65.0	63.4	64.6	64.2	64.2	65.7	67.2	68.6	68.6	67.8	64.0	62.7	63.9
20	64.1	66.2	66.0	64.9	63.4	64.6	64.1	64.2	65.5	67.1	68.5	68.5	67.7	64.0	62.7	63.8
21	64.1	66.1	65.9	64.9	63.4	64.5	64.1	64.1	65.4	67.0	68.4	68.3	67.6	63.9	62.8	63.7
22	64.0	66.0	65.8	64.8	63.4	64.5	64.1	64.1	65.3	66.9	68.3	68.3	67.5	63.9	62.8	63.6
23	63.9	65.9	65.8	64.7	63.3	64.4	64.1	64.0	65.2	66.8	68.2	68.2	67.4	63.8	62.8	63.5
24	63.9	65.9	65.7	64.6	63.3	64.4	64.1	64.0	65.1	66.7	68.1	68.0	67.3	63.8	62.7	63.4
25	63.8	65.8	65.6	64.6	63.3	64.3	64.0	64.0	65.0	66.7	68.0	67.9	67.2	63.7	62.7	63.3
26	63.8	65.7	65.6	64.5	63.2	64.3	64.0	64.0	65.0	66.6	67.9	67.9	67.1	63.7	62.7	63.3
27	63.7	65.7	65.5	64.4	63.2				64.9	66.5	67.8	67.8	67.1	63.7	62.7	63.2
28	63.7	65.6	65.4	64.4	63.1				64.8	66.4	67.7	67.7	67.0	63.6	62.7	63.1
29									64.7	66.3	67.6	67.6	66.9	63.6	62.6	63.0
30									64.7	66.2	67.5	67.5	66.8	63.5	62.6	62.9
31																
32																
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Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)											
Floor	RX101	RX102	RX201	RX202	RX301	RX302	RX303	RX304	RX401	RX402	RX403	RX404
1	65.9	60.0	62.3	53.5	61.9	63.8	66.4	73.6	51.0	48.3	47.4	54.6
2	68.7	65.2	65.3	58.0	67.1	70.8	73.5	75.6	53.5	51.1	51.1	57.8
3	69.6	67.3	65.7	59.1	71.6	74.0	74.1	75.5	54.2	52.0	51.3	58.5
4	69.7	68.0	65.8	59.3	73.1	74.3	74.0	75.2	54.9	52.2	51.4	58.7
5	69.6	68.8	65.9	59.4	73.3	74.2	73.7	74.9	55.6	52.2	51.7	59.0
6	69.6	69.7	65.9	59.4	73.2	73.9	73.5	74.7	56.1	52.3	52.2	59.6
7	69.5	70.5	65.9	59.4	73.1	73.7	73.3	74.4	56.4	52.3	52.7	60.4
8	69.4	71.3	65.9	59.4	72.8	73.4	73.0	74.2	56.5	52.3	52.9	61.3
9	69.4	71.7	65.9	59.4	72.6	73.2	72.8	74.0	56.6	52.3	53.1	61.7
10	69.3	72.0	65.9	59.4	72.4	73.0	72.5	73.7	56.6	52.3	53.2	61.9
11	69.2	72.2	65.9	59.3	72.2	72.8	72.3	73.6	56.6	52.3	53.2	62.2
12	69.1	72.3	65.9	59.3	72.0	72.6	72.1	73.4	56.6	52.3	53.2	62.5
13	69.0	72.3	65.9	59.3	71.9	72.4	71.9	73.2	56.6	52.3	53.5	62.8
14	69.0	72.3	65.8	59.3	71.7	72.2	71.7	73.0	56.5	52.3	53.7	63.0
15	68.9	72.2	65.8	59.3	71.5	72.1	71.6	72.8	56.5	52.2	53.8	63.1
16	68.8	72.1	65.8	59.3	71.4	71.9	71.4	72.7	56.5	52.2	53.9	63.2
17	68.7	72.0	65.8	59.3	71.2	71.7	71.3	72.5	56.5	52.2	54.1	63.3
18	68.7	71.9	65.7	59.3	71.1	71.5	71.1	72.3	56.5	52.2	54.1	63.2
19	68.6	71.8	65.7	59.3	71.0	71.4	71.0	72.2	56.6	52.3	54.1	63.3
20	68.5	71.7	65.7	59.3	70.8	71.2	70.8	72.1	56.6	52.3	54.1	63.3
21	68.5	71.6	65.6	59.3	70.6	71.1	70.6	71.9	56.8	52.3	54.1	63.3
22	68.4	71.5	65.6	59.3	70.5	71.0	70.5	71.8	56.8	52.3	54.1	63.3
23	68.3	71.3	65.6	59.3	70.4	70.8	70.4	71.7	56.7	52.3	54.1	63.3
24	68.2	71.2	65.5	59.3	70.2	70.7	70.3	71.5	56.7	52.3	54.1	63.4
25	68.1	71.1	65.5	59.3	70.1	70.6	70.1	71.4	56.7	52.4	54.1	63.4
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Note:

XX Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.

Floor is not available at individual receiver based on latest layout plan.

Scenario 2 (With Additional At-source Mitigation Measures)

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																					
Floor	RA101	RA102	RA201	RA202	RA203	RB101	RB102	RB201	RB301	RB302	RC101	RC102	RC103	RC104	RC105	RC201	RC202	RD101	RD201	RD202	RD203	RD301
1	68.0	70.4	67.1	68.3	65.1	64.0	55.1	51.2	63.4	58.1	52.2	56.2	66.4	64.7	53.3	54.6	56.6	60.0	63.4	69.4	66.1	55.7
2	67.8	70.1	67.0	68.2	65.0	64.1	59.4	55.0	63.5	60.3	54.4	60.7	66.6	67.4	56.2	58.4	60.3	61.8	64.9	70.2	68.9	60.2
3	67.5	69.8	66.8	68.1	65.0	64.1	61.0	55.8	63.6	60.4	55.7	61.2	66.6	67.4	58.4	60.6	62.1	62.0	64.9	70.0	68.9	63.7
4	67.1	69.4	66.6	68.0	64.9	64.2	61.6	56.5	63.6	60.5	57.0	61.9	66.7	67.4	60.7	62.9	63.8	62.4	64.9	69.8	68.7	66.6
5	66.7	69.0	66.4	67.9	64.9	64.2	61.8	57.0	63.6	60.5	58.3	62.8	66.8	67.3	63.7	65.7	65.8	62.6	64.9	69.7	68.5	67.9
6	66.3	68.7	66.1	67.8	64.8	64.2	61.9	57.4	63.6	60.6	59.4	63.5	66.9	67.3	66.0	67.2	67.4	62.8	64.8	69.5	68.3	68.2
7	66.0	68.4	65.9	67.7	64.8	64.3	62.0	57.8	63.6	60.7	60.3	64.0	67.0	67.4	66.7	67.5	68.0	62.8	64.8	69.3	68.2	68.2
8	65.8	68.1	65.7	67.6	64.7	64.3	62.0	58.3	63.6	60.7	61.2	64.5	67.0	67.4	66.9	67.6	68.1	62.8	64.7	69.2	68.0	68.1
9	65.5	67.9	65.5	67.5	64.6	64.3	62.0	58.8	63.6	60.7	61.7	64.8	67.0	67.4	66.8	67.5	68.0	62.8	64.7	69.0	67.9	68.0
10	65.2	67.7	65.3	67.4	64.6	64.3	62.0	59.1	63.6	60.8	62.1	65.0	67.0	67.3	66.7	67.4	68.0	62.8	64.6	68.9	67.7	67.8
11	65.0	67.5	65.1	67.3	64.5	64.3	62.0	59.5	63.6	60.8	62.3	65.2	67.0	67.3	66.6	67.3	67.8	62.8	64.6	68.7	67.5	67.6
12						64.3	62.1	59.6	63.6	60.8	62.6	65.3	66.9	67.2	66.5	67.2	67.7	62.8	64.6	68.6	67.4	67.5
13						64.3	62.1	59.7	63.6	60.8	62.8	65.4	66.9	67.2	66.4	67.1	67.6	62.8	64.5	68.5	67.3	67.4
14						64.3	62.1	59.9	63.6	60.8	62.8	65.5	66.8	67.1	66.2	67.0	67.5	62.7	64.5	68.3	67.1	67.2
15						64.3	62.1	59.9	63.6	60.8	62.8	65.6	66.7	67.0	66.1	66.9	67.4	62.7	64.5	68.2	67.0	67.1
16						64.3	62.1	60.0	63.6	60.8	62.9	65.6	66.7	67.0	66.0	66.8	67.3	62.7	64.4	68.1	66.9	67.0
17						64.3	62.1	60.1	63.6	60.8	62.9	65.7	66.6	66.9	65.9	66.7	67.2	62.6	64.4	68.0	66.7	66.9
18						64.3	62.1	60.2	63.6	60.8	62.9	65.8	66.6	66.8	65.8	66.6	67.1	62.6	64.3	67.9	66.6	66.7
19						64.2	62.2	60.3	63.6	60.8	62.8	65.9	66.5	66.8	65.7	66.5	67.0	62.6	64.3	67.8	66.5	66.7
20						64.2	62.2	60.5	63.5	60.8	62.8	65.9	66.5	66.7	65.6	66.5	66.9	62.6	64.2	67.7	66.4	66.5
21						64.2	62.2	60.6	63.5	60.8	62.8	65.9	66.4	66.7	65.5	66.4	66.9	62.5	64.2	67.6	66.3	66.5
22						64.2	62.2	60.6	63.5	60.8	62.7	65.9	66.3	66.6	65.4	66.3	66.7	62.5	64.1	67.5	66.2	66.4
23						64.2	62.2	60.7	63.5	60.8	62.7	65.9	66.3	66.5	65.3	66.2	66.7	62.5	64.1	67.4	66.1	66.3
24						64.2	62.2	60.8	63.5	60.8	62.7	65.8	66.2	66.5	65.2	66.2	66.6	62.5	64.0	67.3	66.0	66.2
25											62.6	65.8	66.1	66.4	65.2	66.1	66.5					66.1
26											62.6	65.8	66.1	66.3	65.1	66.0	66.5					
27											62.6	65.7	66.0	66.2	64.9	66.0	66.4					
28											62.6	65.7	66.0	66.2	64.9	65.9	66.3					
29											62.6	65.6	65.9	66.1	64.8	65.8	66.2					
30											62.5	65.6	65.9	66.1	64.7	65.7	66.1					
31											62.5	65.6	65.8	66.0	64.6	65.7	66.1					
32											62.5	65.5	65.7	65.9	64.5	65.6	66.0					
33											62.6	65.5	65.7	65.9	64.5	65.5	65.9					
34											62.7	65.5	65.6	65.8	64.4	65.5	65.9					
35											62.8	65.5	65.6	65.8	64.3	65.4	65.8					

Note:

XX Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.

Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																			
Floor	RE101	RE102	RE201	RE202	RE203	RE204	RE205	RF101	RF102	RF201	RF202	RG101	RG102	RG201	RG202	RG203	RH101	RH201	RH202	RH301
1	54.8	51.2	54.3	60.9	65.5	56.3	53.6	61.0	67.9	66.8	50.0	57.4	53.9	62.4	49.8	52.5	60.0	60.6	60.5	51.2
2	58.9	54.8	58.9	65.8	67.5	62.8	57.7	68.2	67.9	66.8	53.3	63.3	57.8	65.1	52.8	54.9	63.8	64.4	65.8	56.9
3	60.6	56.4	62.5	66.6	67.3	66.2	62.1	69.8	67.8	66.8	55.0	66.5	60.2	65.3	56.0	56.5	65.6	66.2	67.8	58.9
4	61.4	58.0	64.6	67.3	67.2	66.7	64.1	69.9	67.7	66.8	56.5	67.4	62.0	65.3	59.3	58.8	65.9	66.6	68.0	59.7
5	62.4	60.0	65.2	67.5	67.1	66.9	64.6	69.7	67.7	66.8	58.2	67.7	62.9	65.3	60.9	61.0	65.9	66.5	68.0	60.1
6	63.2	62.0	65.1	67.5	66.9	67.0	64.8	69.5	67.6	66.8	59.4	67.7	63.5	65.2	62.0	62.0	65.8	66.4	67.9	60.5
7	64.1	63.7	65.1	67.4	66.8	67.0	65.0	69.3	67.6	66.7	60.3	67.6	64.1	65.2	63.1	62.4	65.7	66.3	67.8	60.7
8	65.1	64.3	64.9	67.3	66.6	67.0	65.1	69.1	67.5	66.7	60.7	67.4	64.5	65.1	63.5	62.7	65.5	66.2	67.6	60.8
9	65.5	64.4	64.8	67.2	66.4	66.9	65.0	68.8	67.5	66.7	61.1	67.2	64.8	65.0	63.8	62.9	65.4	66.2	67.5	60.9
10	65.7	64.4	64.7	67.0	66.4	66.8	64.9	68.6	67.4	66.7	61.4	67.1	64.9	65.0	64.0	63.0	65.2	66.0	67.3	61.1
11	65.7	64.3	64.6	66.9	66.2	66.7	64.8	68.4	67.4	66.6	61.5	66.9	65.0	64.9	64.1	62.9	65.1	65.9	67.1	61.2
12	65.6	64.3	64.5	66.8	66.1	66.6	64.7	68.3	67.3	66.6	61.6	66.7	65.1	64.9	64.1	62.9	65.0	65.8	67.0	61.5
13	65.6	64.2	64.4	66.7	66.0	66.5	64.5	68.1	67.3	66.6	61.7	66.6	65.2	64.8	64.1	62.9	64.9	65.7	66.9	61.7
14	65.5	64.1	64.3	66.6	65.9	66.4	64.4	67.9	67.2	66.6	61.7	66.5	65.2	64.8	64.1	62.9				
15	65.4	64.0	64.2	66.5	65.8	66.3	64.3	67.8	67.1	66.5	61.7	66.3	65.2	64.7	64.0	62.8				
16	65.3	63.9	64.1	66.4	65.7	66.2	64.2	67.6	67.1	66.5	61.7	66.2	65.2	64.7	64.0	62.7				
17	65.2	63.8	64.0	66.3	65.5	66.1	64.1	67.5	67.0	66.4	61.7	66.0	65.2	64.6	63.9	62.8				
18	65.1	63.7	63.9	66.2	65.5	66.0	64.0	67.3	67.0	66.4	61.5	66.0	65.2	64.6	63.9	62.7				
19	65.1	63.6	63.8	66.1	65.3	65.9	63.9	67.2	66.9	66.4	61.5	65.8	65.1	64.5	63.9	62.7				
20	65.0	63.5	63.7	66.0	65.2	65.8	63.8	67.1	66.8	66.4	61.4	65.7	65.1	64.4	63.8	62.7				
21	65.0	63.5	63.7	65.9	65.1	65.7	63.6	66.9	66.8	66.3	61.4	65.6	65.0	64.4	63.8	62.8				
22	64.9	63.4	63.6	65.8	65.0	65.7	63.5	66.8	66.7	66.3	61.3	65.5	65.0	64.4	63.9	62.9				
23	64.8	63.3	63.5	65.7	64.9	65.5	63.4	66.7	66.6	66.2	61.3	65.3	64.9	64.3	63.9	63.0				
24	64.8	63.2	63.4	65.7	64.8	65.5	63.4	66.6	66.6	66.2	61.3	65.3	64.9	64.3	64.0	63.2				
25	64.7	63.1	63.4	65.6	64.7	65.3	63.3					65.2	64.8	64.3	64.1	63.4				
26	64.6	63.1	63.3	65.5	64.6	65.3	63.2					65.1	64.8	64.3	64.2	63.7				
27	64.6	63.0	63.3	65.4	64.5	65.2	63.1					65.0	64.8	64.2	64.3	64.0				
28	64.5	62.9	63.2	65.3	64.5	65.1	63.0					64.9	64.7	64.2	64.4	64.2				
29	64.5	62.9	63.1	65.3	64.4	65.1	63.0					64.8	64.7	64.2	64.5	64.4				
30	64.4	62.8	63.1	65.2	64.3	65.0	63.0					64.7	64.7	64.1	64.7	64.6				
31	64.4	62.7	63.0	65.1	64.2	64.9	63.0					64.6	64.6	64.1	64.8	64.6				
32	64.3	62.7	63.0	65.1	64.2	64.8	63.0													
33	64.3	62.6	62.9	65.0	64.1	64.8	63.0													
34																				
35																				

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																			
Floor	RI101	RI102	RI201	RI202	RI301	RJ101	RJ201	RJ202	RJ203	RK101	RK102	RK103	RK104	RK105	RK106	RK107	RK201	RK202	RK203	RK204
1	66.7	64.9	66.9	63.1	67.3	68.7	64.8	69.8	67.3	67.4	61.9	58.1	64.3	62.8			66.5	68.9	60.3	
2	66.7	64.7	66.9	62.9	67.3	68.7	64.8	69.7	67.3	67.7	64.5	61.7	67.7	66.5			66.7	70.1	64.7	
3	66.7	64.4	66.9	62.6	67.3	68.7	64.8	69.6	67.3	67.9	65.4	64.3	69.1	68.0			67.0	69.9	66.8	
4	66.7	64.1	66.9	62.3	67.3	68.6	64.8	69.4	67.4	68.1	66.1	65.7	69.6	68.7			67.2	69.7	68.1	
5	66.7	63.8	66.8	62.1	67.3	68.6	64.8	69.3	67.4	68.3	66.7	66.3	69.8	69.1			67.4	69.5	68.5	
6	66.7	63.5	66.8	61.8	67.3	68.6	64.7	69.0	67.3	68.4	67.4	66.9	70.0	69.2			67.5	69.3	68.4	
7	66.7	63.2	66.8	61.6	67.3	68.5	64.6	68.8	67.2	68.5	67.7	67.2	70.1	69.2			67.6	69.1	68.3	
8	66.7	63.0	66.8	61.4	67.3	68.5	64.5	68.6	67.1	68.7	67.7	67.3	70.2	69.1			67.7	68.9	68.2	
9	66.7	62.8	66.8	61.4	67.2	68.5	64.4	68.3	67.0	68.8	67.8	67.3	70.2	69.0			67.7	68.7	68.1	
10	66.7	62.6	66.8	61.5	67.2	68.4	64.3	68.1	66.9	68.8	67.7	67.3	70.2	68.8			67.8	68.4	67.9	
11	66.7	62.4	66.8	61.4	67.2	68.4	64.2	67.9	66.8	68.9	67.7	67.3	70.1	68.7			67.8	68.2	67.8	
12	66.6	62.3	66.7	61.4	67.2	68.3	64.1	67.7	66.7	68.8	67.6	67.2	70.0	68.6			67.9	68.1	67.7	
13	66.6	62.2	66.7	61.2	67.1	68.3	64.0	67.6	66.6	68.8	67.6	67.2	69.9	68.5			67.9	67.9	67.5	
14	66.6	62.1	66.7	61.1	67.1	68.3	63.9	67.4	66.6	68.8	67.6	67.2	69.8	68.3			67.8	67.7	67.4	
15	66.6	62.0	66.7	61.0	67.1	68.2	63.9	67.2	66.5	68.7	67.6	67.1	69.6	68.2			67.9	67.5	67.3	
16	66.5	62.0	66.6	61.0	67.0	68.2	63.8	67.1	66.5	68.7	67.5	67.1	69.5	68.1			67.8	67.3	67.1	
17	66.5	61.8	66.6	61.0	67.0	68.1	63.7	66.9	66.6	68.7	67.5	67.1	69.4	68.0			67.8	67.2	67.0	
18	66.5	61.8	66.5	60.9	67.0	68.1	63.7	66.8	66.6	68.6	67.5	67.1	69.3	67.9			67.8	67.0	66.8	
19										68.5	67.4	67.0	69.2	67.8			67.8	66.8	66.7	
20										68.5	67.4	67.0	69.1	67.7			67.8	66.7	66.6	
21										68.5	67.4	66.9	69.0	67.5			67.8	66.5	66.5	
22										68.4	67.3	66.9	68.9	67.4			67.7	66.4	66.4	
23										68.3	67.2	66.8	68.8	67.3			67.7	66.3	66.2	
24										68.3	67.2	66.7	68.7	67.2			67.7	66.1	66.1	
25										68.2	67.1	66.7	68.6	67.1			67.7	66.0	66.0	
26										68.2	67.1	66.6	68.5	67.0			67.7	65.9	65.9	
27																				
28																				
29																				
30																				
31																				
32																				
33																				
34																				
35																				

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																					
Floor	RL101	RL102	RL103	RL104	RL105	RM101	RM102	RM201	RM301	RN101	RN201	RN301	RN401	RO101	RO201	RO301	RP101	RP201	RP202	RP301	RP302	RP401
1	65.2	61.2	63.3	59.2		66.7	69.5	66.9	63.2	62.8	62.4	67.8	68.3	64.5	67.7		63.0	64.5	66.3	67.4	69.6	68.4
2	66.1	64.1	66.5	61.0		66.6	69.5	67.5	64.0	63.7	63.4	68.2	69.0	65.4	67.6		63.3	64.7	67.4	68.1	69.7	68.5
3	66.4	64.9	66.5	61.6		66.7	69.4	67.8	64.9	64.6	64.2	68.9	69.7	65.8	67.5		63.7	65.1	67.7	68.5	69.7	68.7
4	66.7	65.2	66.4	61.9		66.7	69.2	67.9	65.6	65.5	65.2	69.3	69.7	66.2	67.2		64.2	65.6	67.8	68.6	69.8	69.0
5	66.9	65.4	66.4	62.1		66.6	69.0	68.1	66.2	66.1	65.8	69.2	69.5	66.5	67.0		65.0	66.2	67.9	68.7	69.9	69.3
6	67.2	65.5	66.5	62.4		66.6	68.8	68.1	66.6	66.6	66.3	69.0	69.2	66.8	66.8		65.8	66.9	68.0	68.9	69.9	69.5
7	67.3	65.6	66.5	62.5		66.6	68.5	67.9	67.0	67.0	66.8	68.7	68.8	67.0	66.6		66.5	67.5	68.1	69.0	69.9	69.5
8	67.5	65.8	66.4	62.7		66.5	68.3	67.7	67.3	67.3	67.2	68.4	68.5	67.2	66.4		67.1	67.8	68.2	69.0	69.8	69.5
9	67.6	65.8	66.4	62.9		66.5	68.1	67.5	67.5	67.6	67.5	68.1	68.1	67.4	66.2		67.3	67.9	68.3	69.0	69.7	69.4
10	67.7	65.9	66.3	63.1		66.4	67.8	67.3	67.7	67.8	67.6	67.9	67.8	67.6	66.0		67.4	68.0	68.3	68.9	69.6	69.3
11	67.7	66.0	66.2	63.2		66.3	67.6	67.1	67.8	68.0	67.8	67.6	67.6	67.7	65.8		67.5	68.1	68.4	68.8	69.5	69.2
12	67.8	66.0	66.2	63.3		66.3	67.4	66.9	68.0	68.1	68.0	67.3	67.3	67.9	65.6		67.5	68.1	68.3	68.7	69.4	69.1
13	67.9	66.0	66.1	63.4		66.2	67.2	66.6	68.0	68.2	68.1	67.0	67.0	68.0	65.4		67.5	68.1	68.3	68.7	69.4	69.1
14	67.9	66.1	66.0	63.4		66.1	67.0	66.5	68.1	68.2	68.2	66.9	66.8	68.1	65.2		67.5	68.1	68.2	68.6	69.2	69.0
15	67.9	66.1	65.9	63.5		66.0	66.8	66.3	68.1	68.3	68.2	66.6	66.6	68.1	65.1		67.5	68.1	68.1	68.5	69.1	68.9
16	67.9	66.1	65.8	63.6		65.9	66.6	66.1	68.2	68.3	68.3	66.4	66.4	68.1	65.0		67.5	68.0	68.0	68.4	69.1	68.9
17	67.9	66.1	65.7	63.6		65.9	66.4	65.9	68.2	68.3	68.3	66.2	66.2	68.2	64.8		67.5	68.0	67.9	68.4	69.0	68.9
18	67.9	66.1	65.6	63.7		65.8	66.3	65.7	68.2	68.3	68.3	66.1	66.0	68.2	64.7		67.5	68.0	67.9	68.4	68.9	68.8
19	67.9	66.1	65.5	63.7		65.7	66.1	65.5	68.2	68.4	68.3	65.9	65.8	68.2	64.6		67.5	67.9	67.8	68.3	68.8	68.7
20	67.9	66.1	65.4	63.7		65.6	66.0	65.4	68.2	68.4	68.4	65.7	65.7	68.2	64.4		67.5	67.9	67.7	68.2	68.8	68.7
21	67.9	66.1	65.3	63.7										68.2	64.3		67.4	67.8	67.6	68.1	68.6	68.6
22	67.9	66.1	65.2	63.7										68.2	64.2		67.4	67.7	67.5	68.0	68.5	68.5
23	67.8	66.0	65.1	63.8										68.2	64.2		67.3	67.7	67.5	67.9	68.4	68.4
24	67.8	66.0	65.0	63.7										68.2	64.1		67.3	67.6	67.4	67.9	68.3	68.3
25	67.8	66.0	64.9	63.7										68.2	64.1		67.2	67.5	67.3	67.8	68.3	68.2
26	67.8	65.9	64.8	63.7										68.1	64.1		67.1	67.4	67.2	67.7	68.2	68.1
27														68.1	64.0		67.1	67.4	67.2	67.6	68.1	68.0
28														68.1	64.0		67.0	67.3	67.1	67.5	68.0	67.9
29														68.0	64.0		67.0	67.2	67.0	67.4	67.9	67.8
30																	67.0	67.1	67.0	67.3	67.8	67.8
31																	66.9	67.0	66.9	67.2	67.7	67.7
32																						
33																						
34																						
35																						

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)																				
Floor	RQ101	RQ102	RQ201	RQ202	RQ203	RQ204	RQ205	RR101	RR102	RR201	RR202	RR301	RR401	RS101	RS102	RS201	RS202	RT101	RT201	RT202	RT301
1	62.2	57.2	55.7	56.3	54.1	55.5	53.2	57.7	56.7	64.1	55.8	51.2	51.8	54.9	55.5	51.0	56.2	50.6	50.7	58.9	57.3
2	64.5	62.1	59.6	62.9	60.3	62.4	57.0	62.8	61.8	71.2	61.1	55.6	55.5	56.9	58.6	53.3	62.0	53.0	54.1	64.5	63.8
3	65.1	63.7	62.0	65.6	64.6	65.6	59.9	64.3	64.9	71.7	64.0	58.8	57.9	58.4	60.3	55.3	64.1	54.4	56.2	66.3	64.9
4	65.6	64.1	64.4	66.0	65.7	66.1	61.7	65.4	66.1	71.6	66.0	60.4	59.5	60.5	62.0	58.4	64.9	55.4	56.9	66.8	65.4
5	66.1	64.5	65.8	66.0	65.8	66.1	63.0	66.3	66.7	71.4	67.0	61.6	60.7	62.9	63.9	61.4	65.9	56.3	57.4	66.7	65.4
6	66.2	64.9	66.0	66.1	65.7	65.9	64.3	67.2	67.2	71.2	67.2	62.5	61.8	64.7	65.0	62.9	66.5	57.4	58.0	66.6	65.3
7	66.3	65.1	66.2	66.2	65.6	65.7	65.2	67.8	67.7	71.0	67.3	63.1	62.4	65.6	65.7	63.5	66.8	58.6	58.7	66.5	65.2
8	66.3	65.2	66.2	66.5	65.4	65.5	65.5	68.0	68.0	70.9	67.3	63.7	62.7	66.1	66.1	64.2	67.0	59.1	59.7	66.4	65.0
9	66.4	65.3	66.3	66.6	65.3	65.4	65.6	68.1	68.0	70.7	67.3	64.2	63.0	66.3	66.3	64.5	67.0	59.4	60.8	66.3	65.0
10	66.3	65.2	66.3	66.6	65.1	65.2	65.6	68.0	68.0	70.6	67.5	64.8	63.3	66.3	66.2	64.5	66.9	59.6	62.0	66.3	64.9
11	66.3	65.2	66.2	66.5	64.9	65.0	65.6	68.0	68.0	70.4	67.5	65.3	63.7	66.2	66.2	64.5	66.8	59.8	63.0	66.2	64.8
12	66.3	65.2	66.2	66.4	64.7	64.9	65.5	67.9	67.9	70.3	67.6	65.7	64.1	66.1	66.1	64.4	66.7	60.1	63.6	66.1	64.7
13	66.3	65.2	66.1	66.3	64.6	64.7	65.4	67.9	67.8	70.1	67.6	66.0	64.5	66.0	66.0	64.3	66.5	60.4	64.0	66.0	64.6
14	66.2	65.2	66.1	66.2	64.4	64.6	65.3	67.8	67.8	69.9	67.6	66.2	64.8	65.9	65.9	64.2	66.4	60.8	64.4	65.9	64.5
15	66.2	65.2	66.0	66.0	64.3	64.5	65.1	67.7	67.7	69.8	67.6	66.2	65.0	65.7	65.8	64.1	66.2	61.3	64.5	65.8	64.4
16	66.2	65.1	66.0	65.9	64.1	64.3	65.0	67.6	67.6	69.7	67.5	66.3	65.1	65.6	65.7	63.9	66.1	61.7	64.6	65.7	64.3
17	66.2	65.0	65.9	65.8	64.0	64.2	64.9	67.5	67.5	69.5	67.4	66.2	65.1	65.5	65.6	63.8	66.0	62.2	64.7	65.6	64.2
18	66.2	65.0	65.9	65.7	63.9	64.1	64.8	67.5	67.4	69.4	67.3	66.2	65.1	65.4	65.5	63.7	65.8	62.6	64.7	65.5	64.1
19	66.2	65.0	65.8	65.6	63.8	63.9	64.7	67.4	67.3	69.3	67.2	66.1	65.1	65.3	65.4	63.7	65.7	62.9	64.7	65.3	64.0
20	66.1	65.0	65.7	65.5	63.7	63.8	64.6	67.3	67.3	69.1	67.1	66.1	65.1	65.2	65.4	63.7	65.7	63.1	64.6	65.2	63.9
21	66.1	65.0	65.7	65.4	63.6	63.7	64.5	67.2	67.2	69.0	66.9	65.9	65.0	65.2	65.4	63.7	65.6	63.3	64.6	65.1	63.8
22	66.0	64.9	65.6	65.4	63.4	63.6	64.5	67.1	67.1	68.9	66.8	65.9	65.0	65.2	65.4	63.7	65.5	63.5	64.6	65.1	63.8
23	66.0	64.9	65.6	65.3	63.3	63.5	64.4	67.1	67.0	68.8	66.7	65.8	64.9	65.3	65.4	63.7	65.4	63.6	64.5	65.0	63.7
24	65.9	64.9	65.5	65.2	63.2	63.4	64.3	67.0	67.0	68.7	66.6	65.7	64.8	65.4	65.4	63.7	65.4	63.7	64.5	64.9	63.6
25	65.9	64.9	65.4	65.1	63.1	63.3	64.2	66.9	66.9	68.5	66.5	65.6	64.7	65.5	65.5	63.9	65.4	63.8	64.5	64.8	63.6
26	65.8	64.8	65.4	65.0	63.0	63.2	64.2	66.9	66.8	68.4	66.4	65.5	64.7	65.7	65.6	64.2	65.5	63.8	64.4	64.7	63.5
27	65.7	64.8	65.4	64.9	62.9	63.1	64.1	66.8	66.7	68.3	66.3	65.4	64.6	65.8	65.7	64.4	65.6	63.9	64.4	64.6	63.5
28	65.7	64.8	65.3	64.9	62.8	63.0	64.0	66.7	66.6	68.2	66.2	65.3	64.5	65.8	65.7	64.6	65.7	63.9	64.4	64.5	63.4
29	65.7	64.8	65.3	64.8	62.7	62.9	64.0	66.7	66.6	68.1	66.1	65.2	64.4								
30	65.7	64.7	65.3	64.7	62.6	62.7	63.9	66.6	66.5	68.0	65.9	65.1	64.4								
31	65.8	64.7	65.3	64.7	62.5	62.6	63.9	66.5	66.4	67.9	65.8	65.0	64.3								
32	65.7	64.6	65.3	64.6	62.5	62.6	63.8	66.4	66.4	67.9	65.8	64.9	64.2								
33								66.4	66.3	67.8	65.7	64.8	64.2								
34								66.3	66.2	67.7	65.6	64.7	64.1								
35																					

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)															
Floor	RU101	RU102	RU201	RU202	RU301	RV101	RV201	RV301	RW101	RW102	RW201	RW202	RW301	RW302	RW401	RW402
1	54.9	56.9	54.5	50.8	47.0	51.7	52.7	56.7	68.6	56.6	58.4	64.9	63.2	52.9	48.2	67.5
2	60.7	62.4	59.0	55.1	48.8	55.6	56.7	63.3	68.3	62.3	63.8	70.1	69.1	58.1	50.5	67.2
3	63.5	64.9	61.8	59.2	51.3	60.2	60.4	64.7	68.0	67.1	66.6	70.4	69.4	60.5	52.6	66.9
4	64.2	66.4	63.7	60.5	54.1	63.7	62.3	64.8	67.8	68.0	68.0	70.3	69.4	62.4	54.4	66.5
5	64.4	67.3	65.2	62.2	55.4	64.8	62.8	64.8	67.6	68.3	69.1	70.2	69.3	63.8	55.7	66.3
6	64.6	67.5	66.4	63.8	56.3	65.0	63.1	64.8	67.4	68.2	69.7	70.1	69.2	64.5	56.6	66.0
7	64.8	67.5	66.8	64.4	57.4	65.0	63.4	64.8	67.2	68.2	69.9	69.9	69.1	64.7	57.4	65.8
8	64.8	67.4	66.9	64.8	58.8	64.8	63.5	64.8	67.0	68.1	69.9	69.8	69.0	64.7	57.9	65.5
9	64.9	67.3	66.9	64.9	60.1	64.7	63.8	64.8	66.9	68.0	69.8	69.7	68.8	64.6	58.5	65.3
10	64.8	67.2	66.8	65.2	61.3	64.6	64.0	64.7	66.7	67.9	69.7	69.5	68.7	64.6	59.2	65.1
11	64.7	67.1	66.7	65.3	62.1	64.6	64.1	64.6	66.6	67.8	69.5	69.5	68.6	64.5	60.0	64.9
12	64.7	67.0	66.6	65.4	62.5	64.7	64.2	64.6	66.5	67.7	69.4	69.3	68.5	64.4	60.6	64.8
13	64.6	66.9	66.5	65.5	62.8	64.8	64.2	64.5	66.4	67.7	69.3	69.2	68.4	64.4	61.2	64.6
14	64.5	66.8	66.5	65.5	63.1	64.9	64.2	64.4	66.3	67.6	69.2	69.1	68.3	64.4	61.7	64.5
15	64.5	66.7	66.4	65.4	63.2	64.8	64.2	64.4	66.2	67.5	69.1	69.0	68.2	64.3	62.1	64.4
16	64.4	66.6	66.3	65.3	63.2	64.8	64.2	64.3	66.0	67.4	68.9	68.9	68.1	64.2	62.4	64.2
17	64.3	66.5	66.3	65.2	63.3	64.8	64.2	64.3	65.9	67.3	68.8	68.8	68.0	64.2	62.5	64.1
18	64.3	66.4	66.2	65.1	63.4	64.7	64.1	64.2	65.8	67.2	68.7	68.7	67.9	64.1	62.6	64.0
19	64.2	66.3	66.1	65.0	63.4	64.6	64.2	64.2	65.7	67.2	68.6	68.6	67.8	64.0	62.7	63.9
20	64.1	66.2	66.0	64.9	63.4	64.6	64.1	64.2	65.5	67.1	68.5	68.5	67.7	64.0	62.7	63.8
21	64.0	66.1	65.9	64.9	63.4	64.5	64.1	64.1	65.4	67.0	68.4	68.3	67.6	63.9	62.8	63.7
22	64.0	66.0	65.8	64.8	63.4	64.5	64.1	64.1	65.3	66.9	68.3	68.3	67.5	63.9	62.8	63.6
23	63.9	65.9	65.8	64.7	63.3	64.4	64.1	64.0	65.2	66.8	68.2	68.2	67.4	63.8	62.8	63.5
24	63.8	65.9	65.7	64.6	63.3	64.4	64.1	64.0	65.1	66.7	68.1	68.0	67.3	63.8	62.7	63.4
25	63.8	65.8	65.6	64.6	63.3	64.3	64.0	64.0	65.0	66.7	68.0	67.9	67.2	63.7	62.7	63.3
26	63.8	65.7	65.6	64.5	63.2	64.3	64.0	64.0	65.0	66.6	67.9	67.9	67.1	63.7	62.7	63.3
27	63.7	65.7	65.5	64.4	63.2				64.9	66.5	67.8	67.8	67.1	63.7	62.7	63.2
28	63.7	65.6	65.4	64.4	63.1				64.8	66.4	67.7	67.7	67.0	63.6	62.7	63.1
29									64.7	66.3	67.6	67.6	66.9	63.6	62.6	63.0
30									64.7	66.2	67.5	67.5	66.8	63.5	62.6	62.9
31																
32																
33																
34																
35																

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

Project: Fanling North NDA Remaining Phase
Residential Development

	Predicted Noise Level, dB(A)											
Floor	RX101	RX102	RX201	RX202	RX301	RX302	RX303	RX304	RX401	RX402	RX403	RX404
1	65.3	59.3	62.1	53.4	60.4	62.5	64.7	72.3	51.0	48.3	47.3	54.6
2	67.6	64.7	64.9	57.9	65.4	69.2	71.5	74.2	53.5	51.1	51.0	57.8
3	68.3	66.4	65.1	59.1	69.6	72.2	72.1	74.1	54.2	52.0	51.2	58.5
4	68.3	66.9	65.2	59.3	71.1	72.5	71.9	73.9	54.9	52.2	51.4	58.7
5	68.3	67.6	65.3	59.3	71.3	72.3	71.7	73.6	55.6	52.2	51.7	59.0
6	68.2	68.3	65.3	59.4	71.2	72.1	71.5	73.4	56.1	52.3	52.2	59.6
7	68.2	69.0	65.3	59.4	71.0	71.9	71.3	73.2	56.4	52.3	52.6	60.4
8	68.1	69.7	65.3	59.3	70.8	71.6	71.0	72.9	56.5	52.3	52.9	61.3
9	68.0	70.1	65.3	59.3	70.6	71.4	70.8	72.7	56.6	52.3	53.0	61.7
10	68.0	70.3	65.3	59.3	70.4	71.2	70.6	72.5	56.6	52.3	53.1	61.9
11	67.9	70.4	65.2	59.3	70.2	71.0	70.4	72.3	56.6	52.3	53.2	62.2
12	67.8	70.5	65.2	59.3	70.1	70.8	70.2	72.1	56.6	52.3	53.2	62.5
13	67.8	70.5	65.2	59.3	69.9	70.6	70.0	72.0	56.6	52.3	53.5	62.8
14	67.7	70.5	65.2	59.3	69.8	70.5	69.8	71.8	56.5	52.3	53.7	63.0
15	67.6	70.4	65.2	59.3	69.6	70.3	69.6	71.6	56.5	52.2	53.7	63.1
16	67.6	70.3	65.2	59.3	69.5	70.1	69.5	71.5	56.5	52.2	53.8	63.2
17	67.5	70.3	65.2	59.3	69.3	69.9	69.4	71.3	56.5	52.2	54.0	63.3
18	67.4	70.1	65.1	59.3	69.2	69.8	69.2	71.2	56.5	52.1	54.0	63.2
19	67.4	70.0	65.1	59.3	69.1	69.7	69.1	71.0	56.6	52.3	54.0	63.3
20	67.3	69.9	65.1	59.3	68.9	69.5	68.9	70.9	56.6	52.3	54.0	63.3
21	67.2	69.8	65.0	59.2	68.8	69.4	68.7	70.8	56.7	52.3	54.0	63.3
22	67.2	69.7	65.0	59.2	68.6	69.2	68.7	70.6	56.7	52.3	54.0	63.3
23	67.1	69.6	65.0	59.2	68.5	69.1	68.5	70.5	56.7	52.3	54.0	63.3
24	67.0	69.5	64.9	59.2	68.4	69.0	68.4	70.4	56.7	52.3	54.0	63.4
25	67.0	69.4	64.9	59.2	68.3	68.8	68.3	70.3	56.7	52.4	54.0	63.4
26	F	F	F	F	F	F	F	F	F	F	F	F
27	F	F	F	F	F	F	F	F	F	F	F	F
28	F	F	F	F	F	F	F	F	F	F	F	F
29	F	F	F	F	F	F	F	F	F	F	F	F
30	F	F	F	F	F	F	F	F	F	F	F	F
31	F	F	F	F	F	F	F	F	F	F	F	F
32	F	F	F	F	F	F	F	F	F	F	F	F
33	F	F	F	F	F	F	F	F	F	F	F	F
34	F	F	F	F	F	F	F	F	F	F	F	F
35	F	F	F	F	F	F	F	F	F	F	F	F

Note:

XX	Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighed.
	Floor is not available at individual receiver based on latest layout plan.

ANNEX 3.3

DETAILS OF ROAD TRAFFIC NOISE IMPACTS ON NSRS (SOCIAL WELFARE & KINDERGARTEN) IN FLN NDA AT YEAR 2046

Social Welfare
Scenario 1 (Base Case)

Project: Fanling North NDA Remaining Phase
Social Welfare Facilities

	Predicted Noise Level, dB(A)																					
Floor	SB101	SB102	SB103	SB104	SB201	SB202	SB203	SB204	SB301	SB302	SB303	SB304	SB305	SB401	SB402	SB403	SB404	SC101	SC102	SC103	SC104	SC105
1	64.3	57.7	48.6	57.0	56.2	40.3	53.9	44.1	63.7	62.6	60.9	40.8	35.9	54.0	36.9	60.5	51.2	61.2	64.6	73.5	60.5	56.4
2	64.3	57.7	48.7	57.0	56.2	41.4	53.9	44.3	63.7	62.6	60.9	40.9	36.9	54.0	37.4	60.5	51.2	61.2	64.5	73.3	60.5	56.4
3																		61.2	64.5	72.9	60.5	56.4
4																		61.3	64.5	72.4	60.4	56.4
Floor	SC106	SC201	SC202	SC203	SC204	SC205	SC206	SD101	SD102	SD103	SD104	SD105	SD106	SD201	SD202	SD203	SD204	SD301	SD302	SD303	SD304	SD305
1	45.1	73.2	65.9	62.2	61.0	56.1	46.8	63.2	68.7	71.8	62.6	56.1	58.9	72.2	59.5	55.1	61.3	60.6	60.7	60.1	52.9	51.6
2	45.1	73.0	65.9	62.2	61.0	56.1	46.9	63.2	68.6	71.7	62.6	56.1	58.9	72.1	59.5	55.1	61.3	60.6	60.7	60.1	52.9	51.6
3	45.1	72.6	65.8	62.2	61.0	56.1	47.1															
4	45.2	72.1	65.7	62.1	60.9	56.1	47.7															
Floor	SD306	SE101	SE102	SE103	SE104	SE105	SE106	SE107	SE201	SE202	SE203	SE204	SE205	SE206	SF101	SF102	SF103	SF104	SF105	SF106	SF201	SF202	SF203
1	51.2	63.6	67.0	72.5	61.2	55.8	48.3	34.1	70.4	70.6	70.4	57.8	61.5	55.6	68.5	73.2	73.3	63.6	57.1	61.0	67.9	66.9	70.8
2	51.3	63.6	66.9	72.3	61.2	55.8	48.3	34.8	70.2	70.6	70.3	57.8	61.5	55.6	68.5	73.0	73.0	63.5	57.1	61.0	67.9	66.7	70.1
3		63.6	66.9	71.9	61.1	55.8	48.4	36.6	70.0	70.4	70.1	57.8	61.4	55.6									
4		63.5	66.8	71.5	61.0	55.8	48.4	41.0	69.7	70.2	69.9	57.7	61.3	55.7									
Floor	SF204	SF205	SF206	SF207	SG101	SG102	SG103	SG104	SG105	SG106	SG201	SG202	SG203	SG204	SG205	SK101	SK102	SK103	SK104	SK201	SK202	SK203	
1	64.7	66.1	59.8	55.3	74.6	74.5	69.9	63.3	64.0	62.7	66.9	70.8	69.8	69.8	60.7	65.3	65.1	68.7	61.9	71.7	65.3	61.1	
2	64.5	66.1	59.8	55.3	74.0	73.9	69.8	63.2	64.0	62.5	66.9	70.2	69.4	69.3	60.7	65.9	65.3	68.5	62.2	71.5	65.9	61.4	
3					73.1	73.0	69.6	63.1	64.0	62.2	66.8	69.4	68.8	68.5	60.6								
4					72.2	72.2	69.4	62.9	64.0	61.9	66.7	68.5	68.1	67.6	60.5								
Floor	SK204	SL101	SL102	SL103	SL104	SL105	SO101	SO102	SO103	SO104	SO201	SO202	SO203	SO204	SO205	SQ101	SQ102	SQ103	SQ104	SQ105	SQ201	SQ202	
1	63.4	67.5	65.9	60.8	64.1	59.6	59.9	60.0	59.0	36.9	62.6	66.5	68.0	61.6	41.5	48.6	65.2	60.3	53.3	51.5	69.6	70.3	
2	63.5	67.4	66.0	61.5	65.1	60.0	60.7	61.1	59.2	36.9	62.8	66.9	68.2	61.5	42.8	50.0	65.2	60.4	52.9	51.1	69.5	69.9	
3																							
4																							
Floor	SQ203	SQ204	SQ205	SQ206	SW101	SW102	SW103	SW104	SW201	SW202	SW203	SW204	SW301	SW302	SW303	SW304	SW305	SW306	SW401	SW402	SW403	SW404	SW405
1	71.0	60.3	57.6	60.0	56.5	71.4	59.5	57.3	72.4	72.0	61.8	60.2	71.0	69.1	59.4	36.7	36.8	62.8	69.4	57.6	37.7	37.8	56.2
2	70.6	59.9	57.6	60.1	64.4	71.2	59.4	57.4	72.3	72.0	61.7	60.2	71.0	69.1	59.5	36.6	36.8	62.8	69.2	57.7	37.7	37.8	56.3
3					70.1	71.0	59.4	57.7	72.1	71.8	61.7	60.1	70.9	69.0	59.9	42.6	37.1	62.8	69.3	57.9	38.1	38.2	56.5
4					69.5	70.6	59.3	58.7	71.8	71.6	61.6	60.0	70.7	68.8	60.9	43.0	38.3	62.7	68.6	58.9	39.4	40.0	57.1
Floor	SX101	SX102	SX103	SX104	SX201	SX202	SX203	SX204	SX301	SX302	SX303	SX304	SX401	SX402	SX403	SX404							
1	70.3	78.6	64.0	56.2	62.5	78.3	68.6	55.7	66.1	55.5	54.5	58.7	49.9	55.5	60.0	56.0							
2	70.2	78.0	63.9	56.3	62.5	77.7	70.3	55.9	66.1	55.7	54.5	58.7	50.1	56.2	61.7	56.0							
3																							
4																							

Note:

Individual receiver with traffic noise level exceeding the standard of 70 dB(A) as stipulated in HKPSG are highlighted.

Floor is not available at individual receiver based on latest layout plan.

Kindergarten
Scenario 1 (Base Case)

Project: Fanling North NDA Remaining Phase
Kindergarten

	Predicted Noise Level, dB(A)																				
Floor	K0101	K0102	K0103	K0104	K0105	K0106	K0111	K0112	K0113	K0114	K0115	K0116	K0117	K0118	K0301	K0302	K0303	K0304	K0305	K0306	K0307	K0308
1	53.2	57.4	67.8	72.5	69.9	65.8	60.7	70	70.2	70.5	70.5	66.3	60.8	54.5	66	67.5	64.4	68.5	71.4	74.6	74.4	70.7
2																						
3																						
4																						
Floor	K0311	K0312	K0313	K0314	K0315	K0401	K0402	K0403	K0404	K0405	K0406	K0407	K0501	K0502	K0503	K0504	K0505	K0506	K0511	K0512	K0513	K0514
1	65.3	69.9	70.6	71.3	67.6	62.1	63.9	66.4	73.4	70.8	69.6	61.7	55.3	62.7	69.4	72.3	68.1	60.2	65.8	73.6	73.9	73.4
2																						
3																						
4																						
Floor	K0515	K0516	K0601	K0602	K0603	K0604	K0605	K0606	K0607	K0611	K0612	K0613	K0614	K0615	K0616	K0621	K0622	K0623	K0624	K0625	K0626	K0631
1	69	63.6	55.1	59.9	60.8	62.6	68	70.7	63.1	61	68.7	63.9	62.2	61.3	60.8	62.1	65.7	69	70.8	69.2	64.2	59.6
2																						
3																						
4																						
Floor	K0632	K0633	K0634	K0635	K0636	K0701	K0702	K0703	K0704	K0705	K0706	K0707	K0708	K0709	K0801	K0802	K0803	K0804	K0805	K0806	K0807	K0808
1	63	69.4	72.1	72.7	68.5	64.4	71.2	71.5	69.9	69.7	69.9	65.8	61.2	57.7	53.4	71.3	71.8	72.1	69.4	67.4	64.3	60.8
2																						
3																						
4																						
Floor	K0809	K0810	K0811	K0812	K0813																	
1	58.7	59.1	54.5	58.1	65.1																	
2																						
3																						
4																						

Note:

Individual receiver with traffic noise level exceeding the standard of 65 dB(A) as stipulated in HKPSG are highlighted.

Floor is not available at individual receiver based on latest layout plan.

Attachment VIII of
RNTPC Paper No. 5/22

Provision of Major Community Facilities and Open Spaces in Fanling North OZP
(Based on planned population in FLN OZP of 95,300)

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	Requirement based on OZP planned population	Provision		Surplus/ Sortfall against planned provision
			Existing Provision	Planned Provision (including Existing Provision)	
District Open Space	10 ha per 100,000 persons	9.53 ha	0 ha	11.63 ha	+2.10 ha
Local Open Space	10 ha per 100,000 persons	10.25 ha (including demand for specific workers)	0.04 ha	10.51 ha	+0.26 ha
Sports Centre	1 per 50,000 to 65,000 persons (assessed on a district basis)	1	0	2	+1
Sports Ground/ Sport Complex	1 per 200,000 to 250,000 persons (assessed on a district basis)	0	0	0	0
Swimming Pool Complex – standard	1 complex per 287,000 persons# (assessed on a district basis)	0	0	0	0
District Police Station	1 per 200,000 to 500,000 persons (assessed on a regional basis)	0	0	0	0
Divisional Police Station	1 per 100,000 to 200,000 persons (assessed on a regional basis)	0	0	0	0

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	Requirement based on OZP planned population	Provision		Surplus/ Shortfall against planned provision
			Existing Provision	Planned Provision (including Existing Provision)	
Magistracy (with 8 courtrooms)	1 per 660,000 persons (assessed on a regional basis)	0	0	0	0
Community Hall	No set standard	N.A	0	1	N.A.
Library	1 district library for every 200,000 persons (assessed on a district basis)	0	0	0	0
Kindergarten/ Nursery	34 classrooms for 1,000 children aged 3 to 6	68 classrooms	0 classrooms	72 classrooms	+4 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11 (assessed by EDB on a district/school network basis)	142 classrooms	0 classroom	150 classrooms	+8 classrooms
Secondary School	1 whole-day classroom for 40 persons aged 12-17 (assessed by EDB on a territory-wide basis)	106 classrooms	0 classroom	90 classrooms	-16 classrooms
Hospital	5.5 beds per 1,000 persons (assessed by Hospital Authority on a regional/cluster basis)	524 beds	0 bed	0 beds	-524 beds

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	Requirement based on OZP planned population	Provision		Surplus/ Shortfall against planned provision
			Existing Provision	Planned Provision (including Existing Provision)	
Clinic/Health Centre	1 per 100,000 persons (assessed on a district basis)	0	0	1	+1
Child Care Centre	100 aided places per 25,000 persons (assessed by SWD on a local basis)	381	0	300	-81˜
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24 (assessed by SWD on a local basis)	1	0	1	0
Integrated Family Services Centre	1 for 100,000 to 150,000 persons (assessed by SWD on a service boundary basis)	0	0	1	+1
District Elderly Community Centres	One in each new development area with a population of around 170,000 or above (Assessed by SWD)	0	0	0	0
Neighbourhood Elderly Centres	One in a cluster of new and redeveloped housing areas with a population of 15,000 to 20,000 persons,	4	0	5	+1

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	Requirement based on OZP planned population	Provision		Surplus/ Shortfall against planned provision
			Existing Provision	Planned Provision (including Existing Provision)	
	including both public and private housing (assessed by SWD)				
Community Care Services (CCS) Facilities	17.2 subsidised places per 1,000 elderly persons aged 65 or above (assessed by SWD on a district basis)	442 places	0 places	230 places	-212˜ places
Residential Care Homes for the Elderly	21.3 subsidised beds per 1,000 elderly persons aged 65 or above (assessed by SWD on a cluster basis)	548 beds	0 bed	300 beds	-248˜ beds
Pre-school Rehabilitation Services	23 subvented service places for every 1 000 children aged 0-6 (assessed by SWD on a district basis)	204 places	0 place	60 places	-144˜ places
Day Rehabilitation Services	23 subvented service places for every 10 000 persons aged 15 or above (assessed by SWD on a district basis)	174 places	0 place	140 places	-34˜ places
Residential Care Services	36 subvented service places for every 10 000 persons aged 15 or above (assessed by SWD on a cluster basis)	272 places	0 places	230 places	-42˜ places

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	Requirement based on OZP planned population	Provision		Surplus/ Shortfall against planned provision
			Existing Provision	Planned Provision (including Existing Provision)	
Community Rehabilitation Day Centre	1 centre for every 420 000 persons (assessed by SWD on a district basis)	0	0	0	0
District Support Centre for Persons with Disabilities	1 centre for every 280 000 persons (assessed by SWD on a district basis)	0	0	1	+1
Integrated Community Centre for Mental Wellness	1 standard scale centre for every 310 000 persons (assessed by SWD on a district basis)	0	0	0	0

Remark:

~ The deficit in provision is based on OZP planned population while Social Welfare Department (SWD) adopts a wider spatial context/cluster in the assessment of provision of such facility. In applying the population-based planning standards, the distribution of welfare facilities, supply in different districts, service demand as a result of the population growth and demographic changes as well as the provision of different welfare facilities have to be considered. As the HKPSG requirements for these facilities are a long-term goal, the actual provision will be subject to consideration of the SWD in the planning and development process as appropriate. The Government has been adopting a multi-pronged approach with long-, medium- and short-term strategies to identify suitable sites or premises for the provision of more welfare services which are in acute demand.

September 2022